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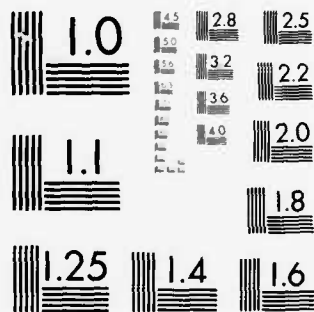
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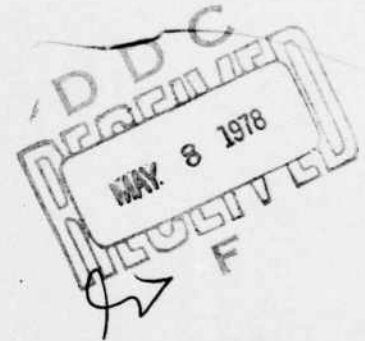
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PERFORMANCE OF THE LACV-30 AIR MANAGEMENT  
SYSTEM MODIFIED CONFIGURATION

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Final Technical Report

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Fort Belvoir, VA

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This report presents the results of a test program to evaluate candidate modifications to the Air Management System of the LACV-30 and to verify adequate performance of the modified design after it had been fabricated and installed on the vehicle. It demonstrates that the modified AMS does maintain positive pressures at the main engine inlets.		

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## SUMMARY

A prior investigation of the LACV-30 Air Management system had noted certain deficiencies, recommended design changes, and predicted the performance of the modified system. The present investigation first evaluated two candidate changes and determined that one of them, consisting of changes to the fan inlet, offered little potential for improvement and should not be further pursued while the other, a diffuser at the fan discharge, was beneficial and should be incorporated.

The finalized Air Management System configuration was fabricated, installed and tested. Its performance fell somewhat short of predictions, primarily as a result of pressure losses attributable to higher than expected (or required) scavenge airflow from the inertial separators. However, the requirement for a positive gage pressure at the engine inlets was met, with achieved pressures ranging between 1 and 3 inches of water. The potential for further increasing these pressures by reducing the filter scavenge flow was also demonstrated. It was concluded that the modified Air Management System is suitable for use on the LACV-30.

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## PREFACE

This report is one of a set of two reports documenting the results of a program to improve the performance of the LACV-30 Air Management System (AMS). Report No. 7467-928007, "Performance of the LACV-30 Air Management System Initial Configuration" describes the original AMS configuration, presents test data showing the performance of its various components, recommends a design modification to provide higher pressures and an additional stage of filtration, and predicts the performance of the recommended modification. Report No. 7467-928008, "Performance of the LACV-30 Air Management System Modified Configuration" presents the results of a test program conducted to demonstrate the adequacy of the AMS after modification.

The program was performed by Bell Aerospace Textron under Contract No. DAAK02-55-C-9149 with the U.S. Army Mobility Equipment Research & Development Command. Mr. John Sargent was the Contracting Officer's Technical Representative and Mr. C. E. Burr was the BAT Program Manager.

## CONTENTS

SECTION		PAGE
	SUMMARY	1
	PREFACE	2
I	INTRODUCTION	5
II	INVESTIGATION	7
III	DISCUSSION	11
IV	CONCLUSIONS	17
V	RECOMMENDATIONS	17
	REFERENCES	18
	APPENDIX - PHASES IB & II TEST DATA	A-1

### LIST OF FIGURES

FIGURE		PAGE
1	TEST INSTRUMENTATION PLAN	6
2	AMS FAN WITH BELLMOUTH INLET	12
3	LACV-30 AMS AND EXHAUST EXTENSION	13
4	MODIFIED AMS TEST COMPARISON WITH ESTIMATE	16

### TABLES

TABLE I	INSTRUMENTATION LIST	8
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## I. INTRODUCTION

The performance of the initial configuration of the Air Management System of the LACV-30 was evaluated by tests conducted in June, 1976, and reported in Reference 1. Several deficiencies were noted and a plan for modifications to correct them was outlined. A rationale was presented for each proposed change, along with a prediction of the system performance after the modifications were completed. It was recommended that two potential changes, one at the fan inlet and the other at the fan discharge, be implemented and tested on the initial configuration before finalizing the modified design. When finalized, the modified AMS was fabricated, installed on LACV-30-2, and tested to verify satisfactory performance.

The tests of the two potential modifications and of the final AMS configuration are described in Section II of this report. The reduced test data is presented in the Appendix and discussed in Section III. Sections IV and V conclude that the modified configuration meets its requirements and recommend its use on the LACV-30.



## II. INVESTIGATION

The overall test program from which the AMS and engine performance data was acquired consisted of 16 tests with a total of 58 runs, all of which have been reduced by a computer program for analysis.

Tests 1-6 were conducted during the first week of June 1976. These were the Phase I tests which provided the basis for the system changes recommended in Reference 1. The reduced data for those tests appears in Appendix B of Reference 1.

Tests 7-10, comprising a total of 15 runs at various engine powers, were performed in early July 1976, to evaluate the potential for obtaining higher system pressures through the reduction of fan inlet losses and/or the use of a diffuser at the fan exit. This data was needed to finalize the recommended AMS modifications. Because they were performed with the AMS otherwise in its initial configuration, they are designated as Phase IB tests.

Test numbers 11 through 16 comprise 24 runs conducted in early August 1976, to evaluate the performance of the modified AMS incorporating all the changes recommended in Reference 1. The arrangement of instrumentation for these Phase II tests is shown in Figure 1. The types of instrument and their purposes are listed in Table I. With minor exceptions, dictated by configuration differences between the initial and modified AMS configurations, Phase II instrumentation and test philosophy is the same for Phase I, described in more detail in Reference 1.

The reduced data from the Phase IB and the Phase II tests are included in the Appendix to this report. Also included there is a table correlating the test run designations with the configuration variables tested, for all three phases of testing.

TABLE I

MODEL 7467 (LACV-30)  
PERFORMANCE TESTS OF THE AIR MANAGEMENT SYSTEM  
INSTRUMENTATION PLAN  
PHASE II

STATION NO.	PURPOSE	PARAMETER	ACQUIRED BY	RANGE
<b>PRESSURES (INCHES OF H<sub>2</sub>O)</b>				
0	ADJUST DATA TO STD BASE	PO - AMBIENT PRESSURE	BAROMETER	-
1	INLET DUCT FLOW VELOCITY INLET DUCT AIR DENSITY	$\Delta P1$ - VELOCITY HEAD $P1$ - STATIC PRESSURE	PITOT-STATIC	0 TO +2.0 -2.0 TO 0
2-000 <sup>0</sup> -1 0 2-090 <sup>0</sup> -1 0 2-190 <sup>0</sup> -1 0 2-270 <sup>0</sup> -1 0	INLET DUCT FLOW VELOCITY (1=INNER RING, 0=OUTER RING)	$\Delta P-000^{0}-1$ $\Delta P-270^{0}-0$	VELOCITY HEAD	0 TO +2.0
2-000 <sup>0</sup> -1 0 2-090 <sup>0</sup> -1 0 2-180 <sup>0</sup> -1 0 2-270 <sup>0</sup> -1 0	INLET DUCT AIR DENSITY	$P2-000^{0}-1$ $P2-270^{0}-0$	STATIC PRESSURE	-2.0 TO 0
3-0300 3-0600 3-0900 3-1200	FAN DISCHARGE VELOCITY AND FLOW DISTRIBUTION	$\Delta P3-0300$ $\Delta P3-0300$	VELOCITY HEAD	0 TO +10.0
3-0300 3-0600 3-0900 3-1200	FAN DISCH. AIR DENSITY	$P3-0300$ $P3-1200$	STATIC PRESSURE	-2.0 TO +20.0
4	COMPARE WITH EARLIER DATA	P4	STATIC PRESSURE	-2.0 TO +20.0
5SFU AU FL AL	EVALUATE PRESSURE DISTRIBUTION AT INLET TO FILTER NO. 1, (STBD SIDE)	$P5SFU$ $P5SAL$	STATIC PRESSURE	-2.0 TO +20.0
5P5PFU AU FL AL	EVALUATE PRESSURE DISTRIBUTION AT INLET TO FILTER NO. 1, (PORT SIDE)	$P5PFU$ $P5PAL$	STATIC PRESSURE	-2.0 TO +20.0

STATION NO.	PURPOSE	PARAMETER	ACQUIRED BY	RANGE
6S	COOLING AIR SPLY. PRESS. (STBD)	P6S - STATIC PRESSURE	STATIC TAP	0 TO +20.0
6P	COOLING AIR SPLY. PRESS. (PORT)	P6P	"	0 TO +20.0
7S	INLET PRESS., FILTER NO. 2 (STBD)	P7S	"	-3.5 TO +20.0
7P	INLET PRESS., FILTER NO. 2 (PORT)	P7P	"	-3.5 TO +20.0
8S	INLET PRESS., FILTER NO. 3 (STBD)	P8S	"	-6.0 TO +20.0
8P	INLET PRESS., FILTER NO. 3 (PORT)	P8P	"	-6.0 TO +20.0
9S	EXIT PRESS., FILTER NO. 3 (STBD)	P9S	"	-9.0 TO +20.0
9P	EXIT PRESS., FILTER NO. 3 (PORT)	P9P	"	-9.0 TO +20.0
10SA	ENGINE INLET PRESS. STBD, TOP	P10SA	"	-9.0 TO +20.0
B	INBOARD	B	"	-9.0 TO +20.0
C	BOTTOM	C	"	-9.0 TO +20.0
D	OUTBOARD	D	"	-9.0 TO +20.0
10PA	ENGINE INLET PRESS. PORT, TOP	P10PA	"	-9.0 TO +20.0
B	INBOARD	B	"	-9.0 TO +20.0
C	BOTTOM	C	"	-9.0 TO +20.0
D	OUTBOARD	D	"	-9.0 TO +20.0
11S	SCAVENGE FLOW, FILT. NO. 1, STBD SCAVENGE AIR DENSITY FILT. NO. 1, STBD	$\Delta P_{11S}$ - VELOCITY HEAD P11S STATIC PRESSURE	PITOT STATIC "	0 TO 1.5 0 TO 10.0
12S	OIL COOLER INLET PRESSURE	P12S	"	0 TO 15.0
13S	OIL COOLER OUTLET PRESSURE	P13S	"	0 TO 10.0
14S-1	MONITOR "SECT. 3" (HOT SECT. PRESSURE) INBOARD	P14S-1	"	0 TO 10.0
O	" " OUTBOARD	P14S-O	"	0 TO 10.0
TEMPERATURES (°F °C AS NOTED)				
O	ADJUST DATA TO STD BASE	T-O - AMBIENT TEMP. (°F)	Cu CONSTANTAN T.C.	0 TO 125°F
1-0300	FAN INLET TEMPERATURE	<div> T-0300  T-0600  T-0900  T-1200 </div>	"	0 TO 200°F
2	FAN EFFICIENCY		"	0 TO 200°F
3S	ENGINE AIR SUPPLY TEMP. (STBD)		"	0 TO 200°F
4S	ENG. COMPR. AIR BLEED INFLUENCE		"	0 TO 250°F

MODEL 7467, AIR MGT. SYSTEM TEST INSTRUMENTATION PLAN, PHASE II  
PRESSURES (CONT'D)

PAGE 3 OF 3

STATION NO.	PURPOSE	PARAMETER	ACQUIRED BY	RANGE
5S-1	MONITOR "SECT 3" (HOT SECT.) INBOARD OUTBOARD	T5S-1 T5S-O	Cu CONSTANTAN T.C.	0 TO 400°F 0 TO 400°F
6S	MONITOR AIR TEMP. VICINITY #2 GEARBOX	T6S	"	0 TO 250°F
7S 7P	COOLING AIR TEMPERATURE "	T7S T7P	" "	0 TO 150°F 0 TO 150°F
8S-1 8S-O	LUBE OIL INPUT, PWR. SECT. #3 " " " " #4	T8S-1 T8S-O	PILOT HOUSE INSTR'N	0 TO 130°C 0 TO 130°C
9S	LUBE OIL INPUT, COMB. GEAR, STBD	T9S	"	0 TO 130°C

### III. DISCUSSION

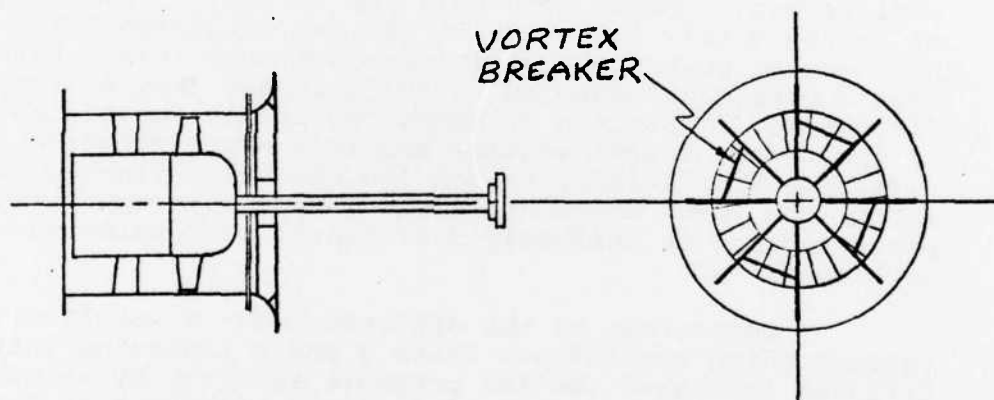
#### PHASE IB

The first Phase IB test, No. 7, was conducted in the initial AMS configuration to provide baseline data in both the 'tethered' mode, i.e., stationary, and underway. For tests Nos. 8 and 9 the air inlet stack and elbow assembly was replaced by a Buffalo Forge Company fan inlet bell and vortex breaker, illustrated in Figure 2. These tests were to determine whether or not flow disturbances caused by the inlet stack and elbow were having adverse effects on the performance of the fan and thus contributing to the low pressures being experienced. Because the test inlet represents a nearly ideal installation, its performance is indicative of the upper limit of improvement achievable with any practical elbow and stack.

A comparison of the fan exit total pressure with the bell installed, Run 8-C2A0707, with the baseline test, at a similar engine power (650 HP), run 7-C2A0706, showed an increase of approximately 1.0" w.g. in the fan discharge total head. At high engine power, the difference was much less. Further, the static pressures measured at the upstream face of the Donaldson Filters No. 1 (Station 5) showed so little improvement as to be of the order of data scatter and were minor compared to the diffusion inefficiency of the fan discharge kinetic head. Apparently, the inlet stack and elbow losses were approximately as predicted and no seriously detrimental flow patterns were being developed.

Comparison of the diffuser Tests 9 and 10 with the corresponding no-diffuser Tests 7 and 8 indicates that the diffuser increases the fan pressure recovery by as much as 3.0 w.g., and a study of the 8 individual pressures at Station 5 showed the range of pressure extremes was reduced 50%. This performance is essentially as predicted, and justifies the inclusion of the diffuser. Phase II began with Test 11 on August 7th after major changes to the AMS concept and configuration had been incorporated on LACV-30-2. The modified AMS is illustrated in Figure 3.

A major redesign was made of the AMS ducts from the downstream face of Filter No. 1 to the engine compartment inlet in order to provide for the installation of Filter No.3, the barrier filter. The first Phase II test, 11, was made with the modified ducting in place, but the barrier filters removed. All subsequent tests included these filters and permitted direct measurement of the pressure drop across them.



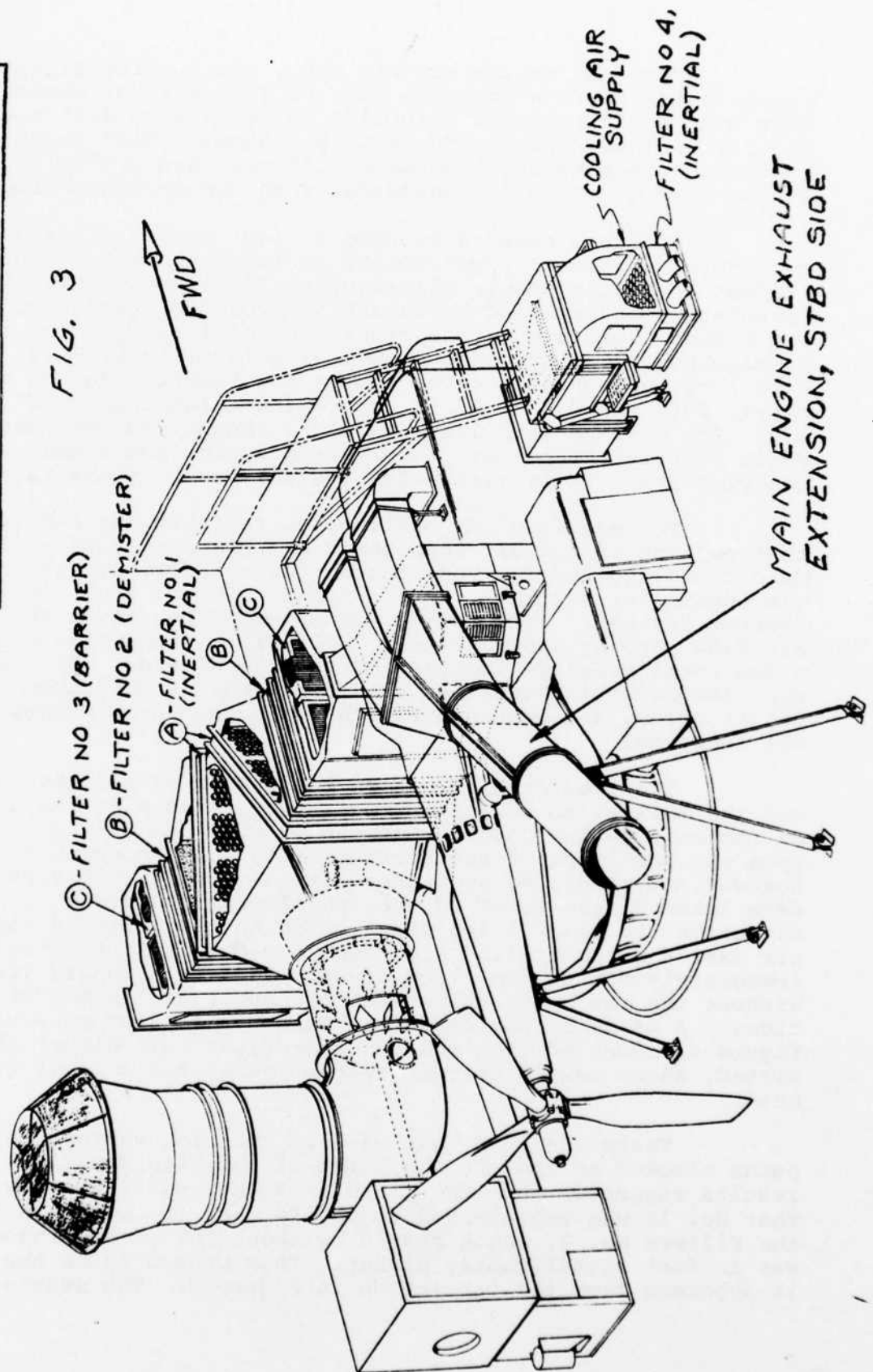
AIR MANAGEMENT FAN WITH BUFFALO  
FORGE COMPANY BELL MOUTH INLET.

FIG 2



LACV-30 AIR MGT. SYSTEM  
AND EXHAUST EXTENSION

FIG. 3



From the manufacturer's data, the barrier filter was expected to impose a pressure drop of 1.5" w.g. at maximum power. This drop would increase with time in service to 4.0" w.g. when the filter load reached 340 grams per panel. Test measurements indicated pressure drops between 1.5" w.g. and 3.3" w.g. at high engine powers, which is consistent with the design estimates.

Pressure sensors mounted at four points in each of the two engine air inlet compartments during Phase I tests had indicated unsatisfactory distribution and inordinately high turbulence, accompanied by excessive pressure losses. To alleviate these conditions, the cross-sectional area of the inlet passage had been increased from 1.51 sq. ft. to 2.69 sq. ft. The effect of this change was to reduce the kinetic head by approximately 68%, and was found to reduce the inlet loss by 2" to 3" w.g. The extreme turbulence which is thought to have been a major contributor to compressor surge during the speed maneuvers was also practically eliminated and the surge is now rare.

The modified AMS design also relieved the AMS fan of that portion of its air load which had previously been allocated the oil cooling and for ventilating the compartments which house the engine hot sections, by providing this air from the lift systems instead. This change was expected to reduce the AMS fan air flow rate by approximately 7,000 cfm, which would result in a fan total pressure increase of about 4.0" w.g. The measured air flow reduction was less than expected, as described in more detail below, and consequently the full pressure increase was not achieved.

The predicted effect on the system of all the changes was the ability to maintain a positive pressure at the inlets of the main engine ranging between 4" w.g. and 7" w.g., depending upon the condition of the barrier filter, as shown in Figure 4. However, the predicted pressures were developed from Phase I data taken during tests of the vehicle when underway, in which situation the stack inlet experienced an unexpectedly high ram-air assist of about 1.5" w.g. due to a downdraft that develops immediately aft of the pilot house. Under stationary tests without the ram head, the system pressures fell short of predictions. A study of the data from Test No. 13 also presented in Figure 4, revealed that the fan flow rates were higher than predicted, which caused greater system losses and a lower fan output head.

Tests 15-1, -2, and -3 were run with various airflow paths blocked to isolate the cause of the high fan flows; the results suggested that the filter scavenge airflows were excessive. Test No. 16 was implemented to verify that the scavenge flow from the Filters No. 1, which should be about 10% of the incoming flow, was in fact significantly higher. This proved to be the case as is apparent from the tabulation in Figure 3. The scavenge air

flow was 65% (about 2000 cfm) higher than was necessary. The test also evaluated the effect of various orifices installed at the discharge end of the inertial filter scavenge pipes and demonstrated a means for adjusting the scavenge flow to any desired level. Test 16-3 with a 5.0" diameter orifice in each of the two scavenge lines raised the engine pressure recorded in test run 16-1 (with wide open scavenge lines) by 1.2" w.g., and reduced the scavenge flow from 17.3% to 12.7% of the fln flow rate.

#### RELATED SUBSYSTEMS

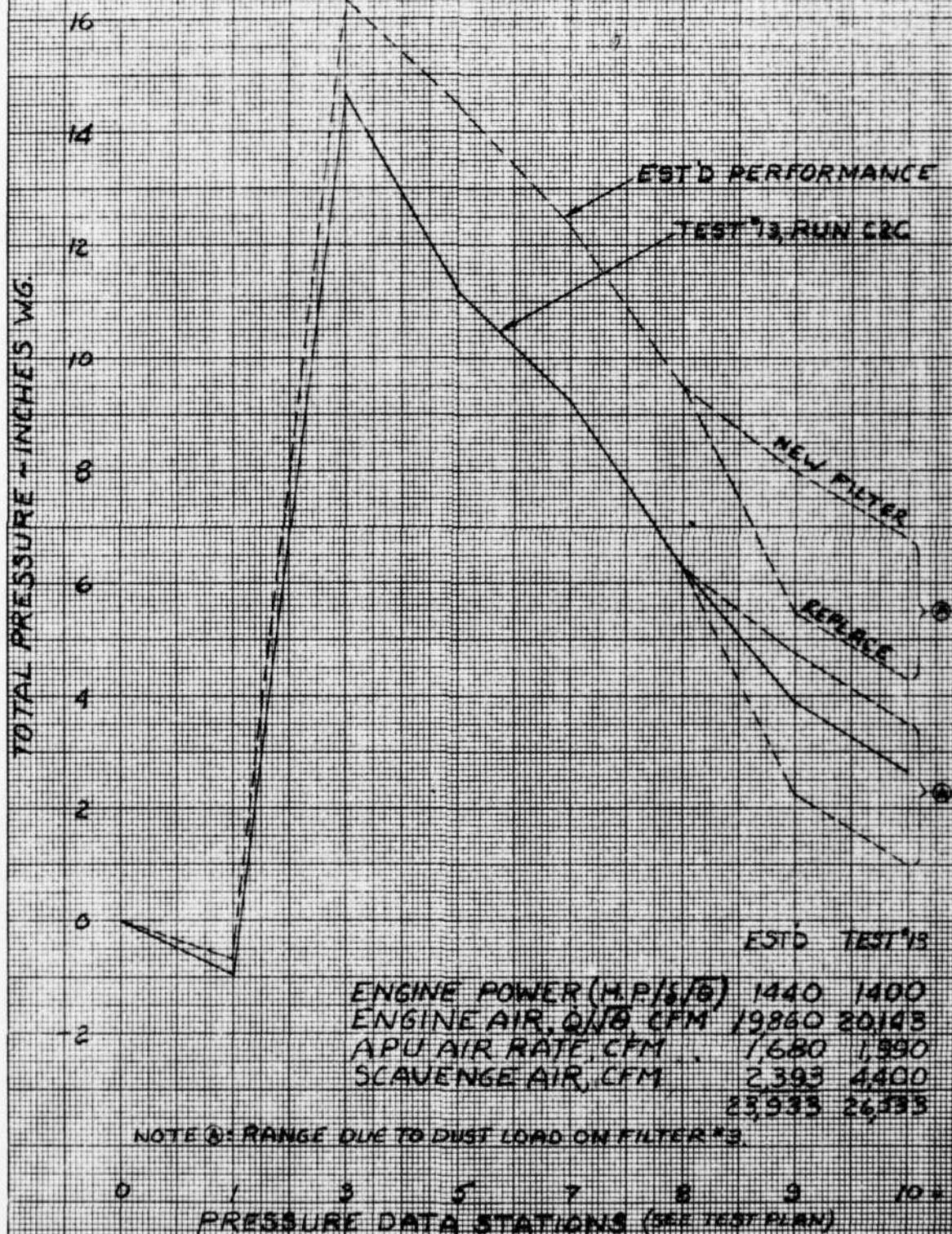
In the modified AMS the cooling air is taken from the lift system. Ducts installed outboard from the forward engine bays of both main engines conduct air from the lift system plenum through inertial separators into those bays (see Figure 3). From these bays, approximately 6000 cfm passes through the six oil coolers and the remainder ventilates the two middle engine compartments where the main engine combustors and exhausts are located. The rate at which air is supplied by the lift system varies roughly 25% with gross vehicle weight, and about 50% with lift fan speed. However, the cooling capability varies positively with the lift power demand and therefore tends to vary with the rate at which heat is rejected to the cooling system. This is an advantageous reversal from the characteristics of the original system, with which cooling capacity tended to vary inversely with the power demand.

All Phase II tests were made with this configuration. The test data verifies that high pressures are present in the oil cooler compartment whenever the engines are providing significant power.

Figure 3 shows the design of an exhaust duct extension developed in conjunction with the AMS redesign. Though not properly a part of the air management system, the extension is relevant in that it is advantageous to prevent the ingestion of exhaust gas by either the AMS fan, which supplies air to the main engines, or the lift system fans which now supply oil cooling air. This duct is intended to minimize the probability of exhaust ingestion in either place.

LACV-30-2  
MODIFIED AIR MANAGEMENT SYSTEM  
COMPARISON OF ESTIMATED PERFORMANCE WITH TYPICAL TEST

FIG 4



#### IV. CONCLUSIONS

The several changes in the arrangement and configuration of the AMS discussed in this report have alleviated the problem of sand ingestion and provided for substantially positive gage pressures at the inlets of the main engines under all contemplated operating conditions. The transfer of cooling air from the AMS to the lift system raised the pressures throughout the system and has practically eliminated the overheating of the main engine reduction gear lubrication system.

Still higher pressures can be made available by reducing the scavenge flow from the inertial separators without degrading their performance.

#### V. RECOMMENDATIONS

The modified AMS is recommended for use on the LACV-30.

#### REFERENCES

1. Performance of the LACV-30 Air Management System Original Configuration, Bell Aerospace Textron Report No. 7467-928007, February, 1978.



APPENDIX  
PHASES IB & II TEST DATA

TABLE A-1. SUMMARY OF AMS TESTS

TEST NO.	TEST DATE (1976)	A	B	C	TEST CONFIGURATION							
					D	E	F	G	H	I	J	
<u>Phase I</u>												
1	June 8, 9	1	1	1	1	1	1	1	1	1	1	
2	10	↓	1	2	↓	↓	↓	↓	↓	↓	↓	
3	11		2	1								
4	15		3									
5	15		1		↓							
6	16				2							
<u>Phase IB</u>												
7	July 6	↓			1							
8	7	2				↓						
9	15	2				2						
10	20	1										
<u>Phase II</u>												
11	Aug 7						↓	↓	↓	↓		
12	7						2	2	2	2		
13	9				↓				3			
14	9				2			↓				↓
15-1	10				1			3				2
15-2	10											3
15-3	10											1
16-1	11											1
16-2	11											4
16-3	11	↓	↓	↓	↓	↓	↓	↓	↓	↓		5

TABLE A-2. DEFINITION OF TEST CONFIGURATIONS

VARIABLE	CODE	CONFIGURATION
A - Fan Inlet Duct	1	Inlet Stack & Elbow
	2	Inlet Bell
B - Rotor Blade Angle	1	= 36° (as delivered)
	2	= 38½° "
	3	= 33° "
C - Oil Cooler Louvers	1	Full Open
	2	Haof Open
D - Vehicle Condition	1	Tethered
	2	Underway
E - FAN DISCHARGE	1	Two Splitters
	2	Concentric Annular Diffuser
F - Eng. Inlet Duct	1	1.51 sq. ft.
	2	2.69 sq. ft.
G - Eng. Exh. Ducts	1	Elbow with 2 Turning Vanes
	2	Elbow with 1 turning Vane
	3	Bifurcated Duct with Extensions
H - Filtration	1	Filters #1 and #2
	2	New Duct, Filt. #1 & #2 only Installed
	3	New Duct, Filt. #1, #2, & #3 Installed
I - Cooling Air Source	1	AMS Fan
	2	Lift System Side Deck
J - Air Distributuon	1	Normal (Main Engines, APU, Scavenge & Cooling)
	2	Main Engines, APU, & Scavenge
	3	Filter Scavenge Flows Blocked
	4	Filters #1 with 6" diam. Scavenge Orifices
	5	Filters #1 with 5" diam. Scavenge Orifices



# TEST No. 7C1A0706

## INPUT DATA

N2= 0.0 0.0 0.0 0.0 0.0 0.0  
 TOP 0.0 0.0 0.0 0.0 0.0 0.0  
 STACK VEL. HO.= 0.60 0.75 0.40 0.50 0.50 0.55  
 STACK STATIC HO.= -0.80 -0.80 -0.80 -0.80 -0.70 0.0  
 FAN VEL. HO.= 4.200 3.000 3.400 3.900 0.50 -0.50  
 FAN STATIC HEAD= 11.000 10.500 10.500 10.500 10.000 10.500  
 PRESS. AT DONALDSON-STB= 11.000 10.500 10.500 10.500 10.000 10.000  
 PRESS. AT DONALDSON-PORT= 10.000 11.000 10.500 10.500 11.500  
 OIL COOLER VEL. HO.= 2.800  
 OIL COOLER STATIC= 6.500  
 PEERLESS PRESS-STB= 9.500 PORT= 9.500  
 PRESS AFT OF PEERLESS-STB= 9.500 PORT= 9.500  
 ENGINE PLENUM PRESS-STB= 9.50 9.30 9.50 9.20  
 ENGINE PLENUM PRESS-PORT= 9.30 9.00 9.30 9.00  
 SCAV. EXH. PRESS= 4.800 HOT SECT. PRESS.= 4.800 COOLER PRESS= 0.100  
 OUTSIDE AIR TEMP.= 82.800  
 STACK TEMPS.= 85.000  
 FAN DISCHARGE TEMP.= 94.000  
 ENGINE PLENUM AIR TEMP.= 93.00 94.00

## ENGINE PERFORMANCE

TEMP= 93.00 AOJ. HP= 0.0 TEMP= 94.00 AOJ. HP= 0.0  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.0 TAVG(364)= 93.500  
 ENGINE AIR(BOTH SIDES)-CFM= 0.0

## STACK PERFORMANCE

AVG STACK TEMP= 84.25  
 STACK PRESSURES VEL= 0.537 STATIC=-0.675 TOTAL HEAD=-0.137  
 FLOW IN STACK-CFM= 0.1982E 05

## FAN PERFORMANCE

PRESS. RECOVERY WITH OIFRUSER(561 OF VEL HO.1) = 12.53  
 FAN DISCHARGE PRESS. STATIC=10.500 VEL. HEAD= 3.625 TOTAL HEAD=14.125  
 STATIC PRESS. COR.= 11.011 TOTAL PRESS. COR.= 14.636  
 FAN PRESS INCREASE=14.262 FAN FLOW CFM= 0.2194E 05 FAN HORSEPOWER= 0.4931E 02  
 AVG. OF STACK AND FAN FLOW-CFM= 0.2088E 05

## APU AND OIL COOLER FLOWS

APU AIR FLOW, CFM = 0.1635E 04  
 OIL COOLER FLOW CFM= 0.1235E 05 VEL. FT/SEC= 0.1143E 03

## SYSTEM PRESSURE DROPS

PRESS. AT DONALDSON, STB= 11.00 PORT= 10.75 AVG= 10.87  
 DONALDSON PRESS. DROP, STB= 1.50 PORT= 1.25 AVG= 1.37  
 PEERLESS PRESS. DROP, STB= 0.0 PORT= 0.0 AVG= 0.0  
 PRESS DROP TO ENG., STB= 0.13 PORT= 0.35 AVG= 0.24  
 PLENUM PRESS., PORT= 9.375 STB= 9.150 AVG= 9.262  
 SCAV. PRESS. DROP= 4.700  
 OIL COOLER DUCT DROP= 3.000  
 DUCT TO HOT COMP. DROP= 1.700  
 DUCT TO OIL COOLER DROP= 6.400

TEST No. 7 CIB0706

INPUT DATA

N2= 44.000 43.300 43.000 43.000  
 TOP 2.000 6.000 2.000 4.200  
 STACK VEL. MO.= 0.85 1.00 0.70 0.65 0.65 0.50 0.65 0.75  
 STACK STATIC MO.= -1.00 -1.00 -1.00 -1.10 -1.20 -1.00 -1.00 -0.90  
 FAN VEL. MO.= 6.200 4.000 6.200 4.500  
 FAN STATIC HFAO= 11.000 11.000 10.000 10.200  
 PRESS. AT DONALDSON-STB= 11.000 10.000 13.500 9.500  
 OIL COOLER VEL. MO.= 2.600 9.400 12.000 11.000 12.500  
 PEERLESS PRESS-STB= 8.700 8.500  
 PRESS-AFT OF PEERLESS-STB= 8.000 8.000  
 ENGINE PLENUM PRESS-STB= 7.90 7.50 7.40  
 ENGINE PLENUM PRESS-PORT= 6.90 6.20 7.00 7.30  
 SCAV. EXH. PRESS= 4.400 HOT SECT. PRESS.= 4.500 COOLER PRESS= 0.100  
 OUTSIDE AIR TEMP.= 82.800  
 STACK TEMPS.= 84.000 83.000 84.000 84.000  
 FAN DISCHARGE TEMP.= 93.000  
 ENGINE PLENUM AIR TEMP.= 93.00 122.00

ENGINE PERFORMANCE

TEMP= 93.00 ADJ. HP= 0.5076E 02TEMP= 122.00 ADJ. HP= 0.4948E 02  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.5240E 02  
 ENGINE AIR(BOTH SIDES)-CFM= 0.1230E 05 TAVG(364)= 107.500

STACK PERFORMANCE

AVG STACK TEMP= 83.75 TEMP RISE IN STACK 0.95  
 STACK PRESSURES VEL= 0.742 STATIC=-0.950 TOTAL HEAO=-0.208  
 FLOW IN STACK-CFM= 0.2327E 05

FAN PERFORMANCE

PRESS. RECOVERY WITH DIFFUSER(561 OF VEL MO.) = 13.48  
 FAN DISCHARGE PRESS. STATIC=10.990 VEL. HEAD= 5.225 TOTAL HEAO=15.775  
 STATIC PRESS. COR.= 11.053 TOTAL PRESS. COR.= 16.278  
 FAN PRESS INCREASE=15.983 FAN FLOW CFM= 0.2626E 05 FAN HORSEPOWER= 0.6615E 02  
 AVG. OF STACK AND FAN FLOW-CFM= 0.2477E 05

APU AND OIL COOLER FLOWS

APU AIR FLOW, CFM = 0.1596E 04  
 OIL COOLER FLOW CFM= 0.1189E 05 VEL. FT/SEC= 0.1101E 03

SYSTEM PRESSURE DROPS

PRESS. AT DONALDSON, STB= 11.00 PORT= 11.22 AVG= 11.11  
 DONALDSON PRESS. DROP, STB= 2.30 PORT= 2.72 AVG= 2.51  
 PEERLESS PRESS. DROP, STB= 0.70 PORT= 0.50 AVG= 0.60  
 PRESS DROP TO ENG., STB= 0.43 PORT= 1.15 AVG= 0.79  
 PLENUM PRESS., PORT= 7.575 STB= 6.850 AVG= 7.212  
 SCAV. PRESS. DROP= 4.100  
 OIL COOLER DUCT DROP= 2.500  
 DUCT TO HOT COMP. DROP= 1.500  
 DUCT TO OIL COOLER DROP= 5.900

# TEST No.7 C2A0706

## INPUT DATA

N2= 96.800 96.300 96.000 96.800  
 TOP 22.000 24.000 18.000 20.000  
 STACK VEL. MO.= 1.60 1.70 1.00 0.80 0.80 1.50 1.25 1.25 1.15  
 STACK STATIC MO.= -1.50 -1.70 -1.50 -1.50 -1.70 -1.50 -1.40 -2.40 -1.50  
 FAN VEL. MO.= 4.800 4.800 6.500 5.200  
 FAN STATIC HEAD= 7.500 7.000 6.500 7.000 6.500 7.000 6.500  
 PRESS. AT DONALDSON-STB= 8.000 6.900 9.000 6.500  
 PRESS. AT DONALDSON-PORT= 5.000 8.600 7.400 9.500  
 OIL COOLER VEL. MO.= 1.500  
 OIL COOLER STATIC= 3.500  
 PEERLESS PRESS-STB= 5.000  
 PORT= 4.800  
 PRESS AFT OF PEERLESS-STB= 2.500  
 PORT= 1.800  
 ENGINE PLENUM PRESS-STB= 1.20 0.0 -0.60 -1.80  
 ENGINE PLENUM PRESS-PORT= -2.00 -1.20 -1.00 -1.00  
 SCAV. EXH. PRESS= 1.500  
 HOT SECT. PRESS.= 2.500  
 COOLER PRESS= 0.0  
 OUTSIDE AIR TEMP.= 82.800  
 STACK TEMPS.= 97.000 92.000 90.000 94.000  
 FAN DISCHARGE TEMP.= 99.000  
 FAN DISCHARGE AIR TEMP.= 103.00 140.00

TEMP= 103.00 ADJ. MP= 0.6731E 03TEMP= 140.00 ADJ. MP= 0.652DE 03  
 AVERAGE HORSEPOWER--BOTH ENGINES= 0.7011E 03  
 ENGINE AIR(100TH STOE)-CFM= 0.1743E 05 TAVG(1364)= 121.500

AVG STACK TEMP= 93.25  
 STACK PRESSURES VEL= 1.321  
 TEMP RISE IN STACK 10.45  
 FLOW IN STACK-CFM= 0.3122E 05  
 STATIC=-1.600 TOTAL HEAD=-0.279

FAN PERFORMANCE  
 PRESS. RECOVERY WITH DIFFUSER(1961 OF VEL MD.) = 9.98  
 FAN DISCHARGE PRESS. STATIC= 7.000 VEL. HEAD= 5.375 TOTAL HEAD=12.325  
 STATIC PRESS. COR.= 7.462 TOTAL PRESS. COR.= 12.787  
 FAN PRESS INCREASE=12.604 FAN FLOW CFM= 0.2681E 05 FAN HORSEPOWER= 0.5325E 02  
 AVG. OF STACK AND FAN FLOW-CFM= 0.2902E 05

## APU AND OIL COOLER FLOWS

APU AIR FLOW, CFM = 0.1640E 04  
 OIL COOLER FLOW CFM= 0.9079E 04 VEL. FT/SEC= 0.8406E 02

## SYSTEM PRESSURE DROPS

PRESS. AT DONALDSON, STB= 7.60  
 PORT= 7.62  
 AVG= 7.61  
 DONALDSON PRESS. DROP, STB= 2.60  
 PORT= 2.82  
 AVG= 2.71  
 PEERLESS PRESS. DROP, STB= 2.50  
 PORT= 3.00  
 AVG= 2.75  
 PRESS DROP TO ENG., STB= 2.80  
 PORT= 3.10  
 AVG= 2.95  
 PLENUM PRESS., PORT= -0.300  
 STB= -1.300  
 AVG= -0.800  
 SCAV. PRESS. DROP= 3.300  
 OIL COOLER DUCT DROP= 1.300  
 DUCT TO HOT COMP. DROP= 1.000  
 DUCT TO OIL COOLER DROP= 3.500

# TEST No. 7 C2B0706

## INPUT DATA

N2= 94.000 94.000 93.000 94.000  
 TOP 35.000 35.000 35.000 35.000  
 STACK VEL. MO.= 1.20 1.60 1.20 1.20 1.25 0.90 0.75 0.82 0.75  
 STACK STATIC MO.= -1.70 -1.70 -1.20 -1.10 -1.50 -1.00 -1.20 -1.50  
 FAN VEL. MO.= 5.600 6.000 6.200 5.900  
 FAN STATIC HEAD= 7.000 6.000 5.500 6.000  
 PRESS. AT DONALDSON-ST80= 7.500 8.000 9.000 5.000  
 OIL COOLER VEL. MO.= 1.000  
 OIL COOLER STATIC= 3.000  
 PORT= 4.000  
 PRESS. AT DONALDSON-ST80= 3.500  
 PORT= 0.0  
 PRESS. AT OF PEERLESS-ST80= 1.20 -2.20 -3.00 -4.00  
 ENGINE PLENUM PRESS-ST80= -5.00 -3.80 -2.80 -3.00  
 ENGINE PLENUM PRESS-PORT= -5.00 -3.80 -2.80 -3.00  
 SCAV. EXH. PRESS= 999.000 HOT SECT. PRESS.= 999.000 COOLER PRESS= 999.000  
 OUTSIDE AIR TEMP.= 82.800  
 STACK TEMPS.= 104.000 103.000 103.000 103.000  
 FAN DISCHARGE TEMP.= 103.000  
 ENGINE PLENUM AIR TEMP.= 112.00 112.00

## ENGINE PERFORMANCE

TEMP= 112.00 ADJ. MP= 0.1081E 04TEMP= 112.00 ADJ. MP= 0.1081E 04  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.1139E 04  
 ENGINE AIRBOTH SIDES-CFM= 0.1904E 05 TAVG(1364)= 112.000

## STACK PERFORMANCE

AVG STACK TEMP= 103.25 TEMP RISE IN STACK 20.45  
 STACK PRESSURES VEL= 1.106 STATIC=-1.458 TOTAL HEAD=0.352  
 FLOW IN STACK-CFM= 0.2807E 05

## FAN PERFORMANCE

PRESS. RECOVERY WITH OIFUSER1561 OF VEL MO.1 = 9.44  
 FAN DISCHARGE PRESS. STATIC= 6.125 VEL. HEAD= 5.925 TOTAL HEAD=12.050  
 STATIC PRESS. COR.= 6.648 TOTAL PRESS. COR.= 12.573  
 FAN PRESS INCREASE=12.402 FAN FLOW CFM= 0.2859E 05 FAN HORSEPOWER= 0.5588E 02  
 AVG. OF STACK AND FAN FLOW-CFM= 0.2873E 05

## APU AND OIL COOLER FLOWS

APU AIR FLOW, CFM = 0.1646E 04  
 OIL COOLER FLOW CFM= 0.7439E 04 VEL. FT/SEC= 0.6893E 02

## SYSTEM PRESSURE OROPS

PRESS. AT DONALDSON. ST8= 7.37 PORT= 6.50 AVG= 6.94  
 DONALDSON PRESS. DROP. ST8= 3.87 PORT= 2.50 AVG= 3.19  
 PEERLESS PRESS. OROP. ST8= 2.00 PORT= 4.00 AVG= 3.00  
 PRESS DROP TO ENG. ST8= 4.10 PORT= 3.65 AVG= 3.87  
 PLENUM PRESS., PORT= -2.600 ST8= -3.650 AVG= -3.125  
 SCAV. PRESS. DROP= -995.000  
 OIL COOLER OUCT OROP= 1.000  
 OUCT TO HOT COMP. DROP= -996.000  
 OUCT TO OIL COOLER OROP= -996.000

# TEST No. 8 C1A0707

## INPUT DATA

N2= 0.0  
 TOP 0.0  
 STACK VEL. HO.= 0.0  
 STACK STATIC HO.= 0.0  
 FAN VEL. HO.= 4.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000  
 FAN STATIC HEAD= 10.750 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500  
 PRESS. AT DONALDSON-ST80 11.500 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000  
 PRESS. AT DONALDSON-PORT= 10.500 11.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500 10.500  
 OIL COOLER VEL. HO.= 3.000  
 OIL COOLER STATIC= 6.250  
 PEERLESS PRESS-ST80= 9.600  
 PRESS AFT OF PEERLESS-ST80= 9.500  
 ENGINE PLENUM PRESS-ST80= 9.50  
 ENGINE PLENUM PRESS-PORT= 9.40 8.50 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00  
 SCAV. EXH. PRESS= 5.000  
 OUTSIDE AIR TEMP.= 76.000  
 STACK TEMPS.= 76.000  
 FAN DISCHARGE TEMP.= 85.000  
 ENGINE PLENUM AIR TEMP.= 81.00 79.00 79.00 79.00 79.00 79.00 79.00 79.00 79.00 79.00 79.00 79.00 79.00 79.00 79.00 79.00 79.00 79.00 79.00 79.00  
 COOLER PRESS= 0.100

## ENGINE PERFORMANCE

TEMP= 81.00 AOJ. HP= 0.0 TEMP= 79.00 AOJ. HP= 0.0  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.0 TAVG(3664)= 80.000  
 ENGINE AIR(BOTH SIOES)-CFM= 0.0

## STACK PERFORMANCE

AVG STACK TEMP= 76.25 TEMP RISE IN STACK 0.25  
 \*\*\*\*\* STACK NOT INSTALLED \*\*\*\*\*

## FAN PERFORMANCE

PRESS. RECOVERY WITH OIFFUSER(561 OF VEL HO.) = 12.54  
 FAN DISCHARGE PRESS. STATIC=10.437 VEL. HEAD= 3.750 TOTAL HEAD=14.187  
 STATIC PRESS. COR.= 10.785 TOTAL PRESS. COR.= 14.535  
 FAN PRESS INCREASE=14.540 FAN FLOW CFM= 0.2215E 05 FAN HORSEPOWER= 0.5075E 02  
 AVG. OF STACK AND FAN FLOW-CFM= 0.1107E 05

## APU AND OIL COOLER FLOWS

APU AIR FLOW, CFM = 0.1605E 04  
 OIL COOLER FLOW CFM= 0.1268E 05 VEL. FT/SEC= 0.1174E 03

## SYSTEM PRESSURE DROPS

PRESS. AT DONALDSON, ST8= 10.87 PORT= 11.00 AVG= 10.94  
 DONALDSON PRESS. DROP, ST8= 1.28 PORT= 1.40 AVG= 1.34  
 PEERLESS PRESS. DROP, ST8= 0.10 PORT= 0.10 AVG= 0.10  
 PRESS DROP TO ENG., ST8= 0.0 PORT= 0.43 AVG= 0.21  
 PLENUM PRESS., PORT= 9.500 ST80= 9.075 AVG= 9.287  
 SCAV. PRESS. DROP= 4.600  
 OIL COOLER OUCT DROP= 3.350  
 OUCT TO HOT COMP. DROP= 1.750  
 DUCT TO OIL COOLER DROP= 6.150

TEST No. 8 C1B0707

# INPUT DATA

N2= 40.000 39.000 20.500 40.000  
 TOP 3.000 5.000 5.000 5.000  
 STACK VEL. HD.= 0.0 0.0 0.0 0.0  
 STACK STATIC HD.= 0.0 0.0 0.0 0.0  
 FAN VEL. HD.= 6.600 3.800 6.200 5.000  
 FAN STATIC HEAD= 10.750 10.750 10.250 10.250  
 PRESS. AT DONALDSON-STB= 12.000 10.000 12.500 9.500  
 PRESS. AT DONALDSON-PORT= 10.000 12.000 11.000 12.000  
 OIL COOLER VEL. HD.= 2.400  
 OIL COOLER STATIC= 6.000  
 PEERLESS PRESS-STB= 8.700  
 PEERLESS PRESS-STB= 8.500  
 PRESS-AFT OF PEERLESS-STB= 8.500  
 PORT= 8.200  
 ENGINE PLENUM PRESS-STB= 8.00 7.90 7.50 7.40  
 ENGINE PLENUM PRESS-PORT= 6.80 6.20 7.00 7.20  
 SCAV. EXH. PRESS= 4.400  
 HOT SECT. PRESS.= 4.500  
 COOLER PRESS= 0.100  
 OUTSIDE AIR TEMP.= 76.000  
 STACK TEMPS.= 75.000 76.000 77.000 76.000  
 FAN DISCHARGE TEMP.= 85.000  
 ENGINE PLENUM AIR TEMP.= 81.00 79.00

## ENGINE PERFORMANCE

TEMP= 81.00 ADJ. HP= 0.5232E 02TEMP= 79.00 ADJ. HP= 0.5241E 02  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.5341E 02  
 ENGINE AIR(BOTH SIDES)-CFM= 0.1203E 05 TAVG(364)= 80.000

## STACK PERFORMANCE

AVG STACK TEMP= 76.00 TEMP RISE IN STACK 0.0  
 \*\*\*\*\* STACK NOT INSTALLED \*\*\*\*\*

## FAN PERFORMANCE

PRESS. RECOVERY WITH DIFFUSER(561 OF VEL HD.) = 13.52  
 FAN DISCHARGE PRESS. STATIC=10.500 VEL. HEAD= 5.400 TOTAL HEAD=15.900  
 STATIC PRESS. COR.= 10.844 TOTAL PRESS. COR.= 16.244  
 FAN PRESS INCREASE=16.252 FAN FLOW CFM= 0.2649E 05 FAN HORSEPOWER= 0.6783E 02  
 AVG. OF STACK AND FAN FLOW-CFM= 0.1324E 05

## APU AND OIL COOLER FLOWS

APU AIR FLOW, CFM = 0.1570E 04  
 OIL COOLER FLOW CFM= 0.1134E 05 VEL. FT/SEC= 0.1050E 03

## SYSTEM PRESSURE DROPS

PRESS. AT DONALDSON, STB= 11.00 PORT= 11.25 AVG= 11.12  
 DONALDSON PRESS. DROP, STB= 2.30 PORT= 2.55 AVG= 2.43  
 PEERLESS PRESS. DROP, STB= 0.20 PORT= 0.50 AVG= 0.35  
 PRESS DROP TO ENG., STB= 0.80 PORT= 1.40 AVG= 1.10  
 PLENUM PRESS., PORT= 7.700 STB= 6.800 AVG= 7.250  
 SCAV. PRESS. DROP= 4.300  
 OIL COOLER DUCT DROP= 2.700  
 DUCT TO HOT COMP. DROP= 1.500  
 DUCT TO OIL COOLER DROP= 5.900

TEST No. 8 C2A0707

## INPUT DATA

N2= 95.500 95.000 95.000 96.000  
 TOP 20.500 20.500 20.500 20.500  
 STACK VEL. HD.= 0.0 0.0 0.0 0.0  
 STACK STATIC HD.= 0.0 0.0 0.0 0.0  
 FAN VEL. HD.= 7.000 7.000 6.500 5.500  
 FAN STATIC HEAD= 7.600 6.700 7.200 7.000  
 PRESS. AT DONALDSON-STBD 8.500 7.300 10.000 6.000  
 PRESS. AT DONALDSON-PORT= 6.000 8.900 8.000 9.500  
 OIL COOLER VEL. HD.= 1.400  
 OIL COOLER STATIC= 4.600  
 PRESS. AT OF PEERLESS-STBD= 2.400 PORT= 1.800  
 PEERLESS PRESS-STBD= 5.000 PORT= 4.600  
 ENGINE PLENUM PRESS-STBD= 1.00 0.0 -0.60 -1.50  
 ENGINE PLENUM PRESS-PORT= -2.00 -0.80 -0.80 -0.40  
 SCAV. EXH. PRESS= 1.000 HOT SECT. PRESS.= 2.400 COOLER PRESS= 0.100  
 OUTSIDE AIR TEMP.= 85.000  
 STACK TEMPS.= 95.000 102.000 95.000 92.000  
 FAN DISCHARGE TEMP.= 102.000  
 ENGINE PLENUM AIR TEMP.= 102.00 141.00

## ENGINE PERFORMANCE

TEMP= 102.00 A.O.J. HP= 0.6501E 03TEMP= 141.00 A.O.J. HP= 0.6286E 03  
 AVERAGE HORSEPOWER--BOTH ENGINES= 0.6765E 03  
 ENGINE AIR(BOTH SIDES)-CFM= 0.1732E 05 TAVG(3&4)= 121.500

## STACK PERFORMANCE

AVG STACK TEMP= 96.00  
 TEMP RISE IN STACK 11.00  
 \*\*\*\*\* STACK NOT INSTALLED \*\*\*\*\*

## FAN PERFORMANCE

PRESS. RECOVERY WITH DIFFUSER(561 OF VEL HD.) = 10.76  
 FAN DISCHARGE PRESS. STATIC= 7.125 VEL. HEAD= 6.500 TOTAL HEAD=13.625  
 STATIC PRESS. COR.= 7.633 TOTAL PRESS. COR.= 14.133  
 FAN PRESS INCREASE=13.977 FAN FLOW CFM= 0.2972E 05 FAN HORSEPOWER= 0.6547E 02  
 AVG. OF STACK AND FAN FLOW-CFM= 0.1486E 05

## APU AND OIL COOLER FLOWS

APU AIR FLOW, CFM = 0.1624E 04 VEL. FT/SEC= 0.8143E 02  
 OIL COOLER FLOW CFM= 0.8794E 04

## SYSTEM PRESSURE DROPS

PRESS. AT DONALDSON, STB= 7.95 PORT= 8.10 AVG= 8.02  
 DONALDSON PRESS. DROP, STB= 2.95 PORT= 3.50 AVG= 3.22  
 PEERLESS PRESS. DROP, STB= 2.60 PORT= 2.80 AVG= 2.70  
 PRESS DROP TO ENG., STB= 2.67 PORT= 2.80 AVG= 2.74  
 PLENUM PRESS., PORT= -0.275 STBD= -1.000 AVG= -0.637  
 SCAV. PRESS. DROP= 3.600  
 OIL COOLER DUCT DROP= -0.100  
 DUCT TO HOT COMP. DROP= 2.300  
 DUCT TO OIL COOLER DROP= 4.600



TEST No 8 C2B0707

INPUT DATA

N2= 92.500 92.500 92.500 92.500  
 TOP 35.000 35.000 35.000 35.000  
 STACK VEL. HD.= 0.0 0.0 0.0 0.0  
 STACK STATIC HD.= 0.0 0.0 0.0 0.0  
 FAN VEL. HD.= 6.400 7.700 8.000 4.500  
 FAN STATIC HEAO= 6.000 5.200 5.800 5.200  
 PRESS. AT DONALDSON-STBD 7.400 7.000 8.500 4.600  
 PRESS. AT DONALDSON-PORT 4.000 7.500 6.500 8.000  
 OIL COOLER VEL. HD.= 1.500  
 OIL COOLER STATIC= 3.500  
 PEERLESS PRESS-STBD= 3.000  
 PRESS. AFT OF PEERLESS-STBD= 0.500  
 PORT= 0.0  
 ENGINE PLENUM PRESS-STBD= -1.80 -2.50 -3.00 -4.50  
 ENGINE PLENUM PRESS-PORT= -3.00 -3.00 -3.50 -3.20  
 SCAV. EXH. PRESS= 0.0  
 HOT SECT. PRESS.= 1.500 COOLER PRESS= 0.100  
 OUTSIDE AIR TEMP.= 85.000  
 STACK TEMPS.= 105.000 111.000 109.000 111.000  
 FAN DISCHARGE TEMP.= 116.000  
 ENGINE PLENUM AIR TEMP.= 115.00 132.00

ENGINE PERFORMANCE

TEMP= 115.00 ADJ. HP= 0.1064E 04TEMP= 132.00 ADJ. HP= 0.1049E 04  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.1120E 04  
 ENGINE AIR(BOTH SIDES)-CFM= 0.1913E 05 TAVG(364)= 123.500

STACK PERFORMANCE

AVG STACK TEMP= 109.00 TEMP RISE IN STACK 24.00  
 \*\*\*\*\* STACK NOT INSTALLED \*\*\*\*\*

FAN PERFORMANCE

PRESS. RECOVERY WITH OIFFUSER(561 OF VEL HD.) = 9.27  
 FAN DISCHARGE PRESS. STATIC= 5.550 VEL. HEAO= 6.650 TOTAL HEAO=12.200  
 STATIC PRESS. COR.= 6.085 TOTAL PRESS. COR.= 12.735  
 FAN PRESS INCREASE=12.552 FAN FLOW CFM= 0.3027E 05 FAN HORSEPOWER= 0.5987E 02  
 AVG. OF STACK AND FAN FLOW-CFM= 0.1514E 05

APU AND OIL COOLER FLOWS

APU AIR FLOW, CFM = 0.1675E 04 VEL. FT/SEC= 0.8531E 02  
 OIL COOLER FLOW CFM= 0.9216E 04

SYSTEM PRESSURE DROPS

PRESS. AT DONALDSON, STB= 6.87 PORT= 6.50 AVG= 6.69  
 DONALDSON PRESS. DROP, STB= 3.87 PORT= 3.50 AVG= 3.69  
 PEERLESS PRESS. DROP, STB= 2.50 PORT= 3.00 AVG= 2.75  
 PRESS DROP TO ENG., STB= 3.45 PORT= 3.17 AVG= 3.31  
 PLENUM PRESS., PORT= -2.950 STBD= -3.175 AVG= -3.062  
 SCAV. PRESS. DROP= 3.000  
 OIL COOLER DUCT DROP= -0.500  
 DUCT TO HOT COMP. DROP= 2.000  
 DUCT TO OIL COOLER DROP= 3.400  
 STOP 999

ENO OF J08.

52.7 SEC. USED .015 HRS. CHARGED 2.895 HRS. REMAINING



TEST No.9 CIA0707

## INPUT DATA

N2= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 TOP 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 STACK VEL. HD.= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 STACK STATIC HD.= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 FAN VEL. HD.= 3.500 2.900 2.900 2.700 2.400 2.400 2.400 2.400 2.400 2.400 2.400 2.400 2.400 2.400 2.400 2.400 2.400 2.400  
 FAN STATIC HEAD= 13.600 13.200 13.200 13.500 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000  
 PRESS. AT DONALDSON-STB0 14.500 13.000 13.000 14.000 14.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000  
 PRESS. AT DONALDSON-PORT+ 13.000 14.200 13.300 14.000 14.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000 13.000  
 OIL COOLER VEL. HD.= 2.700 OIL COOLER STATIC= 8.000  
 PEERLESS PRESS-STB0=12.500 PORT=12.200  
 PRESS AFT OF PEERLESS-STB0=12.500 PORT=12.200  
 ENGINE PLENUM PRESS-STB0= 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00  
 ENGINE PLENUM PRESS-PORT+ 12.00 10.50 11.70 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00  
 SCAV. PRESS= 7.900 HOT SECT. PRESS= 6.000 OIL COOLER PRESS.= 0.100  
 OUTSIDE AIR TEMP.= 83.800  
 STACK TEMP.= 82.000 83.000 84.000 86.000  
 FAN DISCHARGE TEMP.= 92.000  
 ENGINE PLENUM AIR TEMP.= 90.00 91.00

## ENGINE PERFORMANCE

TEMP= 90.00 ADJ. HP= 0.0 TEMP= 91.00 ADJ. HP= 0.0  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.0  
 ENGINE AIR(BOTH SIDES)-CFM= 0.0 TAVG(364)= 90.500

## STACK PERFORMANCE

AVG STACK TEMP= 83.75  
 \*\*\*\*\* STACK NOT INSTALLED \*\*\*\*\*  
 TEMP RISE IN STACK -0.05

## FAN PERFORMANCE

PRESS. RECOVERY WITH OIFUSER(561 OF VEL HD.) = 14.93  
 FAN DISCHARGE PRESS. STATIC=13.325 VEL. HEAD= 2.875 TOTAL HEAD=16.200  
 FAN PRESS INCREASE=16.200 FAN FLOW CFM= 0.3559E 05 FAN HORSEPOWER= 0.9084E 02  
 STATIC PRESS COR.= 13.961 TOTAL PRESS. COR.= 16.836  
 AVG. OF STACK AND FAN FLOW-CFM= 0.1779E 05

## APU AND OIL COOLER FLOWS

APU AIR FLOW, CFM = 0.1556E 04  
 OIL COOLER FLOW CFM= 0.1210E 05 VEL. FT/SEC= 0.1121E 03

## SYSTEM PRESSURE DROPS

PRESS. AT DONALDSON, STB= 13.62 PORT= 13.62 AVG= 13.62  
 DONALDSON PRESS. DROP, STB= 1.12 PORT= 1.42 AVG= 1.27  
 PEERLESS PRESS. DROP, STB= 0.0 PORT= 0.0 AVG= 0.0  
 PRESS DROP TO ENG., STB= 0.45 PORT= 0.65 AVG= 0.55  
 AVERAGE PLENUM PRESS. STB0= 12.050PORT= 11.550AVG= 11.800  
 SCAV. PRESS DROP= 4.300  
 COOLER DUCT DROP= 4.200  
 DUCT TO HOT SECT. DROP= 2.000  
 DUCT TO COOLER DROP= 7.900

TEST No. 9 C1B0716

# INPUT DATA

N2= 40.000 40.000 40.000 40.000  
 TOP 2.500 2.500 2.500 2.500  
 STACK VEL. HO.= 0.0 0.0 0.0 0.0  
 STACK STATIC HO.= 0.0 0.0 0.0 0.0  
 FAN VEL. HO.= 2.100 4.500 3.500 4.000  
 FAN STATIC HEAO= 10.000 10.500 10.500 10.000  
 PRESS. AT DONALDSON-STRO 12.000 10.000 12.000 10.500  
 PRESS. AT DONALDSON-PORT= 10.000 11.500 10.500 11.500  
 OIL COOLER VEL. HO.= 4.000  
 OIL COOLER STATIC= 6.000  
 PEERLESS PRESS-STRO= 9.500  
 PORT= 9.500  
 PRESS-AFT-OF PEERLESS-STRO= 9.000  
 PORT= 9.000  
 ENGINE PLENUM PRESS-STRO= 8.50 8.20 8.20 8.50  
 ENGINE PLENUM PRESS-PORT= 8.00 7.50 8.00 8.30  
 SCAV. PRESS= 6.000  
 HOT SECT. PRESS= 4.800  
 OIL COOLER PRESS.= 0.100  
 OUTSIDE AIR TEMP.= 84.200  
 STACK TEMP.= 157.000  
 144.000 120.000 128.000  
 FAN DISCHARGE TEMP.= 150.000  
 ENGINE PLENUM AIR TEMP.= 135.00 164.00

# ENGINE PERFORMANCE

TEMP= 135.00 AOJ. HP= 0.3231E 02TEMP= 164.00 AOJ. HP= 0.3155E 02  
 AVERAGE HORSEPOWER--ROTH ENGINES-- 0.3460E 02  
 ENGINE AIRBOTH SIDES1-CFM= 0.1249E 05 TAVG(364)= 149.500

# STACK PERFORMANCE

AVG STACK TEMP= 137.25  
 TEMP RISE IN STACK 53.05  
 \*\*\*\*\* STACK NOT INSTALLED \*\*\*\*\*

A-12

# FAN PERFORMANCE

PRESS. RECOVERY WITH OIFRUSER(561 OF VEL HO.) = 12.22  
 FAN DISCHARGE PRESS. STATIC=10.250 VEL. HEAO= 3.525 TOTAL HEAD=13.775  
 FAN PRESS INCREASE=13.775 FAN FLOW CFM= 0.4078E 05 FAN HORSEPOWER= 0.8853E 02  
 STATIC PRESS COR.= 11.796 TOTAL PRESS. COR.= 15.321  
 AVG. OF STACK AND FAN FLOW-CFM= 0.2039E 05

# APU AND OIL COOLER FLOWS

APU AIR FLOW, CFM = 0.1723E 04  
 OIL COOLER FLOW CFM= 0.1549E 05 VEL. FT/SEC= 0.1434E 03

# SYSTEM PRESSURE DROPS

PRESS. AT DONALDSON, STB= 11.12 PORT= 10.87 AVG= 11.00  
 DONALDSON PRESS. DROP, STB= 1.62 PORT= 1.37 AVG= 1.50  
 PEERLESS PRESS. DROP, STB= 0.50 PORT= 0.50 AVG= 0.50  
 PRESS DROP TO ENG., STB= 0.65 PORT= 1.05 AVG= 0.85  
 AVERAGE PLENUM PRESS. STRO= 8.350PORT= 7.950AVG= 8.150  
 SCAV. PRESS DROP= 3.500  
 COOLER OUCT DROP= 3.500  
 DUCT TO HOT SECT. DROP= 1.200  
 DUCT TO COOLER DROP= 5.900

TEST No. 9 C2A0716

## INPUT DATA

N2= 95.200 95.000 94.500 95.300  
 TOP 20.000 21.000 18.000 19.000  
 STACK VEL. HD.= 0.0 0.0 0.0 0.0  
 STACK STATIC HD.= 0.0 0.0 0.0 0.0  
 FAN VEL. HD.= 1.500 4.600 4.800 3.000  
 FAN STATIC HEAD= 7.300 7.500 8.000 7.500  
 PRESS. AT DONALDSON-ST80 9.300 7.500 9.200 7.700  
 PRESS. AT DONALDSON-PORT 7.000 9.500 7.500 9.000  
 OIL COOLER VEL. HD.= 1.700  
 DIL COOLER STATIC= 4.500  
 PORT= 6.000  
 PEERLESS PRESS-ST80= 6.300  
 PORT= 3.400  
 PRESS. AFT OF PEERLESS-ST80= 3.800  
 PORT= 3.400  
 ENGINE PLENUM PRESS-ST80= 2.40 1.30 0.90 -0.30  
 ENGINE PLENUM PRESS-PORT= 2.40 1.90 0.60 0.80  
 SCAV. PRESS= 4.000 HDT SECT. PRESS= 3.700 OIL COOLER PRESS.= 0.100  
 OUTSIDE AIR TEMP.= 84.200  
 STACK TEMP.= 94.000 103.000 95.000 85.000  
 FAN DISCHARGE TEMP.= 104.000  
 ENGINE PLENUM AIR TEMP.= 105.00 145.00

## ENGINE PERFORMANCE

TEMP= 105.00 ADJ. HP= 0.6144E D3TEMP= 145.00 ADJ. HP= 0.5937E D3  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.6410E D3  
 ENGINE AIR(BOTH SIDES)-CFM= 0.1719E 05 TAVG(364)= 125.000

AVG STACK TEMP= 94.25  
 STACK PERFORMANCE  
 TEMP RISE IN STACK 10.05  
 \*\*\*\*\* STACK NOT INSTALLED \*\*\*\*\*

## FAN PERFORMANCE

PRESS. RECOVERY WITH DIFFUSER(56( DF VEL HO.)) = 9.52  
 FAN DISCHARGE PRESS. STATIC= 7.575 VEL. HEAD= 3.475 TOTAL HEAD=11.050  
 FAN PRESS INCREASE=11.050 FAN FLOW CFM= 0.3820E 05 FAN HORSEPOWER= 0.6651E 02  
 STATIC PRESS COR.= 8.090 TOTAL PRESS. COR.= 11.565  
 AVG. DF STACK AND FAN FLOW-CFM= 0.1910E 05

## APU AND OIL COOLER FLOWS

APU AIR FLOW, CFM = 0.1627E 04  
 OIL COOLER FLOW CFM= 0.9708E 04 VEL. FT/SEC= 0.8989E 02

## SYSTEM PRESSURE DROPS

PRESS. AT DONALDSON, ST8= 8.42 PORT= 8.25 AVG= 8.34  
 DONALDSON PRESS. DROP, ST8= 2.12 PORT= 2.25 AVG= 2.19  
 PEERLESS PRESS. DROP, ST8= 2.50 PORT= 2.60 AVG= 2.55  
 PRESS DROP TO ENG., ST8= 2.73 PORT= 1.98 AVG= 2.35  
 AVERAGE PLENUM PRESS. ST80= 1.075PORT= 1.425AVG= 1.250  
 SCAV. PRESS DROP= 2.000  
 COOLFR DUCT DROP= 1.500  
 DUCT TO MOT SECT. DROP= 0.800  
 DUCT TO COOLER DROP= 4.400

TEST No. 9 C2B0716

# INPUT DATA

N2= 93.200 92.000 91.700 92.500  
 TOP 37.000 38.000 34.000 36.000  
 STACK VEL. MD.= 0.0 0.0 0.0 0.0  
 STACK STATIC MD.= 0.0 0.0 0.0 0.0  
 FAN VEL. MD.= 0.800 4.800 4.700 3.000  
 FAN STATIC HEAD= 7.000 6.000 7.500 6.000  
 PRESS. AT DONALDSON-STB= 8.200 6.400 8.000 6.400  
 PRESS. AT DONALDSON-PORT= 6.500 8.200 6.500 8.200  
 OIL COOLER VEL. MD.= 1.400  
 OIL COOLER STATIC= 3.500  
 PORT= 4.800  
 PRESS. AT OF PEERLESS-STB= 1.800 PORT= 1.400  
 -0.60 -1.80 -3.90  
 ENGINE PLENUM PRESS-STB= -0.40 -0.80 -2.00  
 -2.20  
 SCAV. PRESS= 3.000 HOT SECT. PRESS= 2.500 OIL COOLER PRESS.= 0.100  
 OUTSIDE AIR TEMP.= 84.200  
 STACK TEMP.= 95.000 103.000 107.000  
 FAN DISCHARGE TEMP.= 108.000  
 ENGINE PLENUM AIR TEMP.= 106.00 123.00

ENGINE PERFORMANCE  
 TEMP= 106.00 A.O.J. HP= 0.1100E 04TEMP= 123.00 A.O.J. HP= 0.1093E 04  
 AVERAGE HORSEPOWER--80TH ENGINES-- 0.1158E 04  
 ENGINE AIR(80TH STORE)-CFM= 0.1916E 05 TAVG(34)= 114.500

STACK PERFORMANCE  
 AVG STACK TEMP= 103.25 TEMP RISE IN STACK 19.05  
 \*\*\*\*\* STACK NOT INSTALLED \*\*\*\*\*

A-14

FAN PERFORMANCE  
 PRESS. RECOVERY WITH DIFFUSER(56) OF VEL HO-1 = 8.49  
 FAN DISCHARGE PRESS. STATIC= 6.625 VEL. HEAD= 3.325 TOTAL HEAD= 9.950  
 FAN PRESS INCREASE= 9.950 FAN FLOW CFM= 0.3673E 05 FAN HORSEPOWER= 0.5760E 02  
 STATIC PRESS COR.= 7.190 TOTAL PRESS. COR.= 10.515  
 AVG. OF STACK AND FAN FLOW-CFM= 0.1837E 05

APU AND OIL COOLER FLOWS  
 APU AIR FLOW, CFM = 0.1657E 04 VEL. FT/SEC= 0.8186E 02  
 OIL COOLER FLOW CFM= 0.8841E 04

SYSTEM PRESSURE DROPS  
 PRESS. AT DONALDSON, STB= 7.25 PORT= 7.35 AVG= 7.30  
 DONALDSON PRESS. DROP, STB= 2.25 PORT= 2.55 AVG= 2.40  
 PEERLESS PRESS. DROP, STB= 3.20 PORT= 3.40 AVG= 3.30  
 PRESS DROP TO ENG., STB= 3.82 PORT= 2.75 AVG= 3.29  
 AVERAGE PLENUM PRESS. STB= -2.025PORT= -1.350AVG= -1.687  
 SCAV. PRESS DROP= 1.800  
 COOLER DUCT DROP= 1.300  
 DUCT TO HOT SECT. DROP= 1.000  
 DUCT TO COOLER DROP= 3.400

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TEMP= 90.00 AOJ. HP= 0.0 TEMP= 91.00 AOJ. HP= 0.0
AVERAGE HORSEPOWER--BOTH ENGINES-- 0.0
ENGINE AIR(BOTH SIZES)-CFM= 0.0 TAVG(1364)= 90.500

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STACK PERFORMANCE	
AVG STACK TEMP=	82.75
STACK PRESSURES	VEL = 0.629
FLOW IN STACK-CFM=	0.2068E 05
STATIC=-0.958	TOTAL HEAD=-0.329
TEMP RISE IN STACK	0.75

PRESS. RECOVERY WITH OIFFUSER1561 OF VEL HQ.1 = 14.79  
FAN DISCHARGE PRESS. STATIC=13.450 VEL. HEAD=2.500 TOTAL HEAD=15.850  
FAN PRESS INCREASE=16.179 FAN FLOW CFM= 0.3218E 05 FAN HORSEPOWER= 0.8204E 02  
STATIC PRESS COR.= 144.066 TOTAL PRESS. COR.= 16.466  
AVG. OF STACK AND FAN FLOW-CFM= 0.2643E 05

APU AIR FLOW, CFM = 0.1568E 04  
OIL COOLER FLOW CFM= 0.1358E 05 VEL. FT/SEC= 0.1258E 03  
APU AND OIL COOLER FLOWS

SYSTEM PRESSURE GROUPS

PRESS. AT DONALSON, STB=	13.62	PORT=	13.50	AVG=	13.56
DONALSON PRESS. DROP, STB=	1.12	PORT=	1.20	AVG=	1.16
PEERLESS PRESS. DROP, STB=	0.50	PORT=	0.30	AVG=	0.40
PRESS DROP TO ENG., STB=	0.0	PORT=	0.43	AVG=	0.21
AVERAGE PLENUM PRESS. STB=	12.00	PORT=		11.575	AVG= 11.787
SCAV. PRESS DROP=	4.500				
COOLER DUCT DROP=	4.400				
DUCT TO HOT SECT. DROP=	1.900				
DUCT TO COOLER DROP=	7.800				

# TEST NO. 10 C160720

## INPUT DATA

N2= 40.000 39.500 39.500 39.500  
 TDP 2.000 5.000 3.000 3.000  
 STACK VEL. HD.= 1.00 1.30 0.60 0.60  
 STACK STATIC HD.= -1.20 -1.40 -1.25 -1.25  
 FAN VEL. HD.= 3.200 2.900 2.600 2.500  
 FAN STATIC HEAD= 11.100 10.800 11.000 11.000  
 PRESS. AT DONALDSON-ST80 12.500 10.800 12.500 11.000  
 PRESS. AT DONALDSON-PORTA 10.000 12.500 11.000 12.000  
 OIL COOLER VEL. HD.= 2.600  
 OIL COOLER STATIC= 6.500  
 PEERLESS PRESS-ST80= 9.500  
 PRESS AFT OF PEERLESS-ST80= 9.000  
 PORT= 8.500  
 ENGINE PLENUM PRESS-ST80= 8.50  
 ENGINE PLENUM PRESS-PORTA= 8.00  
 SCAV. PRESS= 6.600  
 HOT SECT. PRESS= 4.500  
 OIL COOLER PRESS.= 0.100  
 OUTSIDE AIR TEMP.= 82.000  
 STACK TEMP.= 112.000  
 FAN DISCHARGE TEMP.= 134.000  
 ENGINE PLENUM AIR TEMP.= 120.00  
 151.00

ENGINE PERFORMANCE  
 TEMP= 120.00 ADJ. HP= 0.4210E 02  
 TEMP= 151.00 A.O.J. HP= 0.4102E 02  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.4450E 02  
 ENGINE AIR(80TH SIDES)-CFM= 0.1248E 05  
 TAVG(364)= 135.500

STACK PERFORMANCE  
 AVG STACK TEMP= 111.25  
 TEMP RISE IN STACK 29.25  
 STACK PRESSURES VEL= 0.925  
 STATIC=-1.204  
 TOTAL HEAD=-0.279  
 FLOW IN STACK-CFM= 0.2652E 05

FAN PERFORMANCE  
 PRESS. RECOVERY WITH DIFFUSER(561 OF VEL HD.) = 12.54  
 FAN DISCHARGE PRESS. STATIC=10.975  
 VEL. HEAD= 2.800  
 TOTAL HEAD=13.775  
 FAN PRESS INCREASE=14.054  
 FAN FLOW CFM= 0.3603E 05  
 FAN HORSEPOWER= 0.7980E 02  
 STATIC PRESS COR.= 121081  
 TOTAL PRESS. COR.= 14.881  
 AVG. OF STACK AND FAN FLOW-CFM= 0.3128E 05

APU AND OIL COOLER FLOWS  
 APU AIR FLOW, CFM = 0.1691E 04  
 OIL COOLER FLOW CFM= 0.1232E 05  
 VEL. FT/SEC= 0.1141E 03

SYSTEM PRESSURE DROPS  
 PRESS. AT DONALDSON, ST8= 11.70  
 PORT= 11.37  
 AVG= 11.54  
 DONALDSON PRESS. DROP, ST8= 2.20  
 PORT= 1.88  
 AVG= 2.04  
 PEERLESS PRESS. DROP, ST8= 0.50  
 PORT= 1.00  
 AVG= 0.75  
 PRESS DROP TO ENG., ST8= 0.58  
 PORT= 0.40  
 AVG= 0.49  
 AVERAGE PLENUM PRESS. ST80= 8.425  
 PORT= 8.100  
 AVG= 8.262  
 SCAV. PRESS DROP= 2.900  
 COOLER DUCT DROP= 3.000  
 DUCT TO HOT SECT. DROP= 2.000  
 DUCT TO COOLER DROP= 6.400

TEST No. 10 CZA0720

# INPUT DATA

N2= 95.000 95.000 94.000 95.000  
 TOP 22.000 22.000 17.000 19.000  
 STACK VEL. HO.= 1.20 1.60 1.10 0.90 1.00 1.90 1.60 1.40 1.00  
 STACK STATIC HO.= -2.20 -1.80 -1.90 -1.90 -1.90 -1.60 -1.50 -1.70 -1.90  
 FAN VEL. HO.= 4.500 2.000 4.500 2.000  
 FAN STATIC HEAD= 6.100 6.000 6.500 6.300  
 PRESS. AT DONALDSON-ST80 8.500 7.000 8.500 7.200  
 PRESS. AT DONALDSON-PORT= 6.000 8.500 6.800 7.800  
 OIL COOLER VEL. HO.= 1.200  
 OIL COOLER STATIC= 3.500  
 PORT= 5.000  
 PRESS. AT OF PEERLESS-ST80= 3.200 PORT= 2.500  
 ENGINE PLENUM PRESS-ST80= 1.00 0.40 -0.40 -0.40  
 ENGINE PLENUM PRESS-PORT= 0.80 0.40 -0.80 -1.00  
 SCAV. PRESS= 999.000 HQT SECT. PRESS= 999.000 OIL COOLER PRESS.= 999.000  
 OUTSIDE AIR TEMP.= 82.000  
 STACK TEMP.= 164.000 155.000 153.000 151.000  
 FAN DISCHARGE TEMP.= 166.000  
 ENGINE PLENUM AIR TEMP.= 160.00 202.00

## ENGINE PERFORMANCE

TEMP= 160.00 A.O.J. HP= 0.600LE O3TEMP= 202.00 A.O.J. HP= 0.5807E 03  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.6559E 03  
 ENGINE AIR(BOTH SIDES)-CFM= 0.1792E 05 TAVG(3&4)= 181.000

## STACK PERFORMANCE

AVG STACK TEMP= 155.75 TEMP RISE IN STACK 73.75  
 STACK PRESSURES VEL= 1.275 STATIC=-1.917 TOTAL HEAD=-0.642  
 FLOW IN STACK-CFM= 0.3242E 05

## FAN PERFORMANCE

PRESS. RECOVERY WITH DIFFUSER(561 OF VEL HO.) = 8.04  
 FAN DISCHARGE PRESS. STATIC= 6.225 VEL. HEAD= 3.250 TOTAL HEAD= 9.475  
 FAN PRESS INCREASE=10.117 FAN FLOW CFM= 0.3955E 05 FAN HORSEPOWER= 0.6304E 02  
 STATIC PRESS COR.= 7.386 TOTAL PRESS. COR.= 10.636  
 AVG. OF STACK AND FAN FLOW-CFM= 0.3598E 05

## APU AND OIL COOLER FLOWS

APU AIR FLOW, CFM = 0.1814E 04  
 OIL COOLER FLOW CFM= 0.8593E 04 VEL. FT/SEC= 0.7957E 02

## SYSTEM PRESSURE DROPS

PRESS. AT DONALDSON, ST8= 7.80 PORT= 7.27 AVG= 7.54  
 DONALDSON PRESS. DROP, ST8= 2.40 PORT= 2.27 AVG= 2.34  
 PEERLESS PRESS. DROP, ST8= 2.20 PORT= 2.50 AVG= 2.35  
 PRESS DROP TO ENG., ST8= 3.05 PORT= 2.65 AVG= 2.85  
 AVERAGE PLENUM PRESS. ST8= 0.150PORT= -0.150AVG= -0.000  
 SCAV. PRESS DROP= -994.000  
 COOLER DUCT DROP= 1.500  
 DUCT TO HOT SECT. DROP= -995.500  
 DUCT TO COOLER DROP= -995.500  
 STOP 999  
 END OF JOB.

29.3 SEC. USED .009 HRS. CHARGED 2.886 HRS. REMAINING



TEST No 11 C1B0807

# INPUT DATA

(ALL PRESSURES INCHES OF WATER-ALL TEMP.OEG.F UNLESS OTHERWISE STATED)

N2= 40.000 40.000 40.000 40.000  
 TOP 2.000 5.000 3.000 4.000  
 STACK VEL. HD.= 0.90 0.90 0.70 0.90 0.80 0.80 1.00 0.90  
 STACK STATIC HD.= -0.30 -0.30 -0.30 -0.40 -0.30 -0.20 -0.20 -0.30  
 FAN VEL. HD.= 5.000 5.100 0.500 0.300  
 FAN STATIC HEAD= 7.700 7.300 7.300 7.200  
 PRESS. AT INERTIAL FILTER-ST80 10.000 9.500 10.000 9.500  
 PRESS. AT INERTIAL FILTER-PORT= 9.500 10.000 9.500 10.000  
 COOLING AIR SPLY PRESS.-ST80 = 3.200 PORT= 3.100  
 PEERLESS PRESS-ST80= 9.000 PORT= 9.000  
 PRESS AFT OF PEERLESS-ST80= 8.500 PORT= 8.500  
 PRESS AFT OF BARRIER-ST80= 8.500 PORT= 8.500  
 ENGINE PLENUM PRESS-ST80= 8.50 8.00 8.00 8.00  
 ENGINE PLENUM PRESS-PORT= 8.00 8.00 8.00 8.00  
 FILTER NO.1 SCAV. PRESS.-VEL.HD.= 4.000 STATIC HD.= 3.830  
 OIL COOLER PRESS.-INLET = 1.800 OUTLET = 0.200  
 HOT SECT. PRESS.-INBRD.= 0.0 OUTRD.= 0.0  
 OUTSIDE AIR TEMP.= 75.000  
 STACK TEMP.= 78.000 78.000 78.000 78.000  
 FAN DISCHARGE TEMP.= 87.000  
 ENGINE PLENUM AIR TEMP.= 87.00 124.00  
 AIR TEMP.VIC.NO.2-GEAR 80X = 130.000  
 COOLING AIR TEMP.-ST80.= 78.000 PORT= 86.000  
 LUBE OIL INPUT TEMP.-PMR-SECT.NO.3 = 52.000OEG.C NO.4 = 55.000OEG.C  
 LUBE OIL INPUT TEMP.-COMB-GEAR, ST8.= 60.000OEG.C

A-18

## ENGINE PERFORMANCE

TEMP= 87.00 AOJ. HP= 0.4718E 02TEMP= 124.00 AOJ. HP= 0.4566E 02  
 AVERAGE HORSEPOWER--80TH ENGINES-- 0.4844E 02  
 ENGINE AIR(BOTH STORES)-CFM= 0.1223E 05 TAVG(364)= 105.500

## STACK PERFORMANCE

AVG STACK TEMP= 78.00 TEMP RISE IN STACK 3.00  
 STACK PRESSURES VEL= 0.867 STATIC=-0.292 TOTAL HEAD= 0.575  
 FLOW IN STACK-CFM= 0.2511E 05

## FAN PERFORMANCE

PRESS. RECOVERY WITH OIFFUSER(561 OF VEL HD.1) = 8.90  
 FAN DISCHARGE PRESS. STATIC= 7.375 VEL. HEAD= 2.725 TOTAL HEAD=10.100  
 FAN PRESS INCREASE= 9.525 FAN FLOW CFM= 0.1650E 05 FAN HORSEPOWER= 0.2477E 02  
 STATIC PRESS COR.= 7.645 TOTAL PRESS. COR.= 10.370  
 AVG. OF STACK AND FAN FL3W-CFM= 0.2080E 05

## APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

APU AIR FLOW, CFM = 0.1700E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.1742E 04 VEL.-FT/SEC = 0.1358E 03

## SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, ST8= 9.75 PORT= 9.75 AVG= 9.75  
 INERTIAL FILTER PRESS. DROP, ST8= 0.75 PORT= 0.75 AVG= 0.75  
 PEERLESS PRESS. DROP, ST8= 0.50 PORT= 0.50 AVG= 0.50  
 BARRIER FILTER PRESS.DROP = 0.0  
 PRESS DROP TO ENG., ST8= 0.38 PORT= 0.50 AVG= 0.44  
 AVERAGE PLENUM PRESS. ST80= 8.125PORT= 8.000AVG= 8.062



SCAV. PRESS DROP = 5.200  
COOLER DUCT DROP = 3.150  
DROP TO HOT SECT. = 1.800  
PRESS. DROP ACROSS OIL COOLER = 1.600

## TEST No. 11 C2A0807

## INPUT DATA

TAIL PRESSURES INCHES OF WATER-ALL TEMP.-DEG.F UNLESS OTHERWISE STATED

N2= 95.000 95.000 95.000 95.000  
 TOP 20.000 20.000 20.000 20.000  
 STACK VEL. MO.= 0.90 0.90 0.70 0.90 0.80 0.80 1.00 0.90  
 STACK STATIC MO.= -0.70 -0.80 -0.75 -0.75 -0.50 -0.70 -0.60 -0.70  
 FAN VEL. MO.= 7.200 8.800 1.300 0.0  
 FAN STATIC HEAD= 10.750 10.000 8.900 10.000  
 PRESS. AT INERTIAL FILTER-STB= 14.000 12.000 13.500 12.500  
 PRESS. AT INERTIAL FILTER-PORT= 12.000 13.500 12.500 13.500  
 COOLING AIR SPLY PRESS.-STB= 11.500 PORT= 11.500  
 PEERLESS PRESS-STB= 11.000 PORT= 11.000  
 PRESS AFT OF PEERLESS-STB= 9.500 PORT= 8.500  
 PRESS AFT OF BARRIER-STB= 8.000 PORT= 8.200  
 ENGINE PLENUM PRESS-STB= 7.80 7.60 7.60 7.20  
 ENGINE PLENUM PRESS-PORT= 7.50 7.50 7.60 7.60  
 FILTER NO.1 SCAV. PRESS.-VEL. MO.= 5.000 STATIC MO.= 4.500  
 OIL COOLER PRESS.-INLET= 7.300 OUTLET= 5.600  
 HOT SECT. PRESS.-INLET= 0.600 OUTLET= 0.600  
 OUTSIDE AIR TEMP.= 75.000  
 STACK TEMP.= 78.000 78.000 78.000 78.000  
 FAN DISCHARGE TEMP.= 87.000  
 ENGINE PLENUM AIR TEMP.= 86.00 95.00  
 AIR TEMP.VIC.NO.2-GEAR BOX= 211.000  
 COOLING AIR TEMP.-STB= 104.000 PORT= 113.000  
 LUBE OIL INPUT TEMP.-PWR-SECT.NO.3= 85.000 DEG.C  
 LUBE OIL INPUT TEMP.-COMP-GEAR,STB.= 90.000 DEG.C

NO.4 = 90.000 DEG.C

TEMP= 86.00 ADJ. MP= 0.6409E 03TEMP= 99.00 ADJ. MP= 3.6334E 03  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.6574E 03  
 ENGINE AIR FLOW--BOTH SIDES--CFM= 0.1687E 05 TAVG13641= 92.500

AVG STACK TEMP= 78.00  
 STACK PRESSURES VEL= 0.867  
 FLOW IN STACK-CFM= 0.2511E 05  
 TEMP RISE IN STACK 3.00  
 STATIC--0.725 TOTAL HEAD= 0.142

## FAN PERFORMANCE

PRESS. RECOVERY WITH OILFRUSER1561 OF VEL MO.1 = 12.33  
 FAN DISCHARGE PRESS. STATIC= 9.912 VEL. HEAD= 4.325 TOTAL HEAD= 14.237  
 FAN PRESS INCREASE= 14.096 FAN FLOW CFM= 0.1949E 05 FAN HORSEPOWER= 0.4329E 02  
 STATIC PRESS COR.= 10.276 TOTAL PRESS. COR.= 14.601  
 AVG. OF STACK AND FAN FLOW-CFM= 0.2230E 05

## APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

APU AIR FLOW, CFM = 0.1630E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.1948E 04 VEL.-FT/SEC = 0.1519E 03

## SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, STB= 13.00 PORT= 12.87 AVG= 12.94  
 INERTIAL FILTER PRESS. DROP, STB= 2.00 PORT= 1.88 AVG= 1.94  
 PEERLESS PRESS. DROP, STB= 2.50 PORT= 2.50 AVG= 2.50  
 BARRIER FILTER PRESS. DROP = 0.40  
 PRESS DROP TO ENG., STB= 0.35 PORT= 0.65 AVG= 0.50  
 AVERAGE PLENUM PRESS. STB= 7.650 PORT= 7.550 AVG= 7.600

38

SCAV. PRESS DROP = 6.500  
COOLER DUCT DROP = 11.500  
DROP TO HOT SECT. = 7.300  
PRESS. DROP ACROSS OIL COOLER = 1.700

TEST Unit 020807

## INPUT DATA

(ALL PRESSURES INCHES OF WATER-ALL TEMP. DEG. F UNLESS OTHERWISE STATED)

N2= 94.000 94.000 93.000 93.000  
 TOP 36.000 36.000 36.000 38.000  
 STACK VEL. HD.= 1.10 1.30 1.10 1.10 1.50 1.40 1.00 0.50  
 STACK STATIC HD.= -1.50 -1.50 -1.30 -1.50 -1.30 -1.40 -1.30 -1.50  
 FAN VEL. HD.= 7.500 7.200 2.500 0.0  
 FAN STATIC HEAD= 9.000 8.000 7.000 8.000  
 PRESS. AT INERTIAL FILTER-STB= 12.000 10.500 11.500 10.000  
 PRESS. AT INERTIAL FILTER-PORT= 9.600 12.000 10.500 11.000  
 COOLING AIR SPLY PRESS.-STB= 11.000 PORT= 10.500  
 PEERLESS PRESS-STB= 9.000 PORT= 9.000  
 PRESS AFT OF PEERLESS-STB= 6.400 PORT= 6.000  
 PRESS AFT OF BARRIER-STB= 5.500 PORT= 5.500  
 ENGINE PLENUM PRESS-STB= 4.50 3.60 3.50 3.50  
 ENGINE PLENUM PRESS-PORT= 4.00 3.80 3.30 3.30  
 FILTER NO.1 SCAV. PRESS.-VEL.HD.= 4.000 STATIC HD.= 3.600  
 OIL COOLER PRESS.-INLET = 4.800 OUTLET = 0.200  
 HOT SECT. PRESS.-INBRD.= 0.0 OUTRD.= 0.0  
 OUTSIDE AIR TEMP.= 75.000  
 STACK TEMP.= 100.000 100.000 92.000 90.000  
 FAN DISCHARGE TEMP.= 102.000  
 ENGINE PLENUM AIR TEMP.= 106.00 115.00  
 AIR TEMP.-VIC.NO.2 GEAR BOX = 123.000  
 COOLING AIR TEMP.-STB.= 131.000 PORT= 121.000  
 LUBE OIL INPUT TEMP.-PMR.SECT.NO.3 = 100.000 DEG.C NO.4 = 104.000 DEG.C  
 LUBE OIL INPUT TEMP.-COMB.GEAR, STB.= 100.000 DEG.C

A-22

## ENGINE PERFORMANCE

TEMP= 106.00 A.O.J. HP= 0.1131E 04 TEMP= 115.00 A.O.J. HP= 0.1122E 04  
 AVERAGE HORSEPOWER--80TH ENGINES-- 0.1181E 04  
 ENGINE AIR 80TH SIDES1-CFM= 0.1920E 05 TAVG(3&4)= 110.500

## STACK PERFORMANCE

AVG STACK TEMP= 95.50  
 STACK PRESSURES VEL= 1.117 STATIC=-1.425 TOTAL HEAD=-0.308  
 FLOW IN STACK-CFM= 0.2880E 05

## FAN PERFORMANCE

PRESS. RECOVERY WITH OIFRUSER(561 OF VEL HD.1 = 10.41  
 FAN DISCHARGE PRESS. STATIC= 8.000 VEL. HEAD= 4.300 TOTAL HEAD=12.300  
 FAN PRESS INCREASE=12.608 FAN FLOW CFM= 0.2043E 05 FAN HORSEPOWER= 0.4058E 02  
 STATIC PRESS COR.= 8.563 TOTAL PRESS. COR.= 12.863  
 AVG. OF STACK AND FAN FLOW-CFM= 0.2461E 05

## APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

APU AIR FLOW, CFM = 0.1683E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.1766E 04 VEL.-FT/SEC = 0.1376E 03

## SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, STB= 11.00 PORT= 10.77 AVG= 10.89  
 INERTIAL FILTER PRESS. DROP, STB= 2.00 PORT= 1.77 AVG= 1.89  
 PEERLESS PRESS. DROP, STB= 2.60 PORT= 3.00 AVG= 2.80  
 BARRIER FILTER PRESS.DROP = 0.70  
 PRESS DROP TO ENG., STB= 1.73 PORT= 1.90 AVG= 1.81  
 AVERAGE PLENUM PRESS. STB= 3.775PORT= 3.600AVG= 3.697

42  
SCAV. PRESS DROP = 5.400  
COOLER DUCT DROP = 10.750  
DROP TO HOT SECT. = 4.800  
PRESS. DROP ACROSS OIL COOLER = 4.600

TEST No 11 C2C0807

## INPUT DATA

(ALL PRESSURES INCHES OF WATER-ALL TEMP.OEG.F UNLESS OTHERWISE STATED)

N2= 94.000 94.000 91.000 92.000  
 TOP 38.000 39.000 39.000 41.000  
 STACK VEL. HO.= 1.10 1.50 1.00 1.10 1.00 1.00 0.90 0.80 0.60  
 STACK STATIC HO.= -1.50 -1.50 -1.50 -1.50 -1.30 -1.30 -1.30 -1.30 -1.50  
 FAN VEL. HO.= 7.200 7.500 2.600 0.0  
 FAN STATIC HEAD= 8.100 8.000 7.000 8.200  
 PRESS. AT INERTIAL FILTER-ST8D 12.000 10.000 11.500 10.500  
 PRESS. AT INERTIAL FILTER-PORT= 12.000 10.500 10.000 11.500  
 COOLING AIR SPLY PRESS.-ST8D =10.500 PORT =10.500  
 PEERLESS PRESS-ST8D= 9.000 PORT= 8.600  
 PRESS AFT OF PEERLESS-ST8D= 5.400 PORT= 5.000  
 PRESS AFT OF BARRIER-ST8D= 5.000 PORT= 5.000  
 ENGINE PLENUM PRESS-ST8D= 5.20 4.00 3.50 3.50  
 ENGINE PLENUM PRESS-PORT= 5.00 4.00 3.50 3.50  
 FILTER-NO.1 SCAV. PRESS.-VEL.HO.= 4.200 STATIC HO.= 3.500  
 OIL COOLER PRESS.-INLET = 3.800 OUTLET = 5.000  
 HOT SECT. PRESS.-INRRO.= 0.100 OUT80.= 0.100  
 OUTSIDE AIR TEMP.= 75.000  
 STACK TEMP.= 90.000 93.000 92.000 90.000  
 FAN DISCHARGE TEMP.= 99.000  
 ENGINE PLENUM AIR TEMP.= 102.00 106.00  
 AIR TEMP.VIC-NO.2 GEAR BOX = 125.000  
 COOLING AIR TEMP.-ST8D.= 132.000 PORT= 118.000  
 LUBE OIL INPUT TEMP.-PMR1SECT.NO.3 = 100.000OEG.C NO.4 = 103.000OEG.C  
 LUBE OIL INPUT TEMP.-COMB.GEAR,ST8.= 100.000OEG.C

A-24

## ENGINE PERFORMANCE

TEMP= 102.00 A.O.J. HP= 0.1210E 04TEMP= 106.00 A.O.J. HP= 0.1206E 04  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.1259E 04  
 ENGINE AIR(80TH SIOES)-CFM= 0.1941E 05 TAVG(364)= 104.000

## STACK PERFORMANCE

AVG STACK TEMP= 91.25  
 STACK PRESSURES VEL= 1.025 STATIC=-1.433 TOTAL HEAD=-0.408  
 FLOW IN STACK-CFM= 0.2752E 05

## FAN PERFORMANCE

PRESS. RECOVERY WITH OIFRUSER(561 OF VEL HO.) = 10.25  
 FAN DISCHARGE PRESS. STATIC= 7.825 VEL. HEAD= 4.325 TOTAL HEAD=12.150  
 FAN PRESS INCREASE=12.558 FAN FLOW CFM= 0.2044E 05 FAN HORSEPOWER= 0.4045E 02  
 STATIC PRESS COR.= 81312 TOTAL PRESS. COR.= 12.637  
 AVG. OF STACK AND FAN FLOW-CFM= 0.2398E 05

## APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

APU AIR FLOW, CFM = 0.1674E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.1804E 04 VEL.-FT/SEC = 0.1407E 03

## SYSTEM PRESSURE OROPS

PRESS. AT INERTIAL FILTER, ST8= 11.00 PORT= 11.00 AVG= 11.00  
 INERTIAL FILTER PRESS. DROP, ST8= 2.00 PORT= 2.40 AVG= 2.20  
 PEERLESS PRESS. DROP, ST8= 3.60 PORT= 3.60 AVG= 3.60  
 BARRIER FILTER PRESS.DROP = 0.20  
 PRESS DROP TO ENG., ST8= 0.95 PORT= 1.00 AVG= 0.98  
 AVERAGE PLENUM PRESS. ST8= 4.050PORT= 4.000AVG= 4.025

42

SCAV. PRESS DROP = 5.300  
COOLER DUCT DROP = 10.500  
DROP TO HOT SECT. = 31.800  
PRESS. DROP ACROSS OIL COOLER = -1.200

TEST No. 12 C1B0807

## INPUT DATA

ALL PRESSURES INCHES OF WATER-ALL TEMP. DEG. F UNLESS OTHERWISE STATED I

N2= 43.000 43.000 41.000 42.000  
 TOP 2.000 4.000 4.000 4.000  
 STACK VEL. HO.= 0.30 0.30 0.25 0.25 0.30 0.45 0.30 0.40 0.30  
 STACK STATIC HO.= -0.30 -0.30 -0.30 -0.30 -0.30 -0.30 -0.25 -0.30  
 FAN VEL. HO.= 4.200 5.400 0.200 0.200  
 FAN STATIC HEAD= 7.500 6.500 7.100 7.000  
 PRESS. AT INERTIAL FILTER-STBD 10.000 9.500 10.000 9.500  
 PRESS. AT INERTIAL FILTER-PORT= 9.200 10.000 9.500 9.500  
 COOLING AIR SPLY PRESS.-STBD = 3.400 PORT = 3.300  
 PEERLESS PRESS-STBD= 9.000 PORT= 9.000  
 PRESS AFT OF PEERLESS-STBD= 8.500 PORT= 8.500  
 PRESS AFT OF BARRIER-STBD= 8.500 PORT= 8.300  
 ENGINE PLENUM PRESS-STBD= 8.00 8.00 7.80 8.00  
 ENGINE PLENUM PRESS-PORT= 8.00 7.50 7.50 7.50  
 FILTER NO.1 SCAV. PRESS.-VEL.HO.= 3.800 STATIC HO.= 3.700  
 OIL COOLER PRESS.-INLET = 1.900 OUTLET = 0.100  
 HOT SECT. PRESS.-INBRD.= 0.0 OUTBD.= 0.0  
 OUTSIDE AIR TEMP.= 81.000  
 STACK TEMP.= 82.000 82.000 88.000 86.000  
 FAN DISCHARGE TEMP.= 92.000  
 ENGINE PLENUM AIR TEMP.= 92.00 132.00  
 AIR TEMP.VIC.NO.2.GEAR BOX = 96.000  
 COOLING AIR TEMP.-STBD.= 92.000 PORT= 102.000  
 LUBE OIL INPUT TEMP.-PHR1SECT.NO.3 = 57.000DEG.C NO.4 = 58.000DEG.C  
 LUBE OIL INPUT TEMP., COMB.GEAR, STB.= 65.000DEG.C

## ENGINE PERFORMANCE

TEMP= 92.00 ADJ. HP= 0.4949E 02TEMP= 132.00 ADJ. HP= 0.4778E 02  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.5103E 02  
 ENGINE AIR(BOTH SIDES)-CFM= 0.1233E 05 TAVG(1344)= 112.000

## STACK PERFORMANCE

AVG STACK TEMP= 84.50 TEMP RISE IN STACK 3.50  
 STACK PRESSURES VEL= 0.312 STATIC=-0.304 TOTAL HEAD= 0.008  
 FLOW IN STACK-CFM= 0.1513E 05

## FAN PERFORMANCE

PRESS. RECOVERY WITH OIFRUSER1561 OF VEL HO.1 = 8.42  
 FAN DISCHARGE PRESS. STATIC= 7.025 VEL. HEAD= 2.500 TOTAL HEAD= 9.525  
 FAN PRESS INCREASE= 9.517 FAN FLOW CFM= 0.1521E 05 FAN HORSEPOWER= 0.2281E 02  
 STATIC PRESS COR.= 7.370 TOTAL PRESS. COR.= 9.870  
 AVG. OF STACK AND FAN FLOW-CFM= 0.1517E 05

## APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

APU AIR FLOW, CFM = 0.1726E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.1706E 04 VEL.-FT/SEC = 0.1330E 03

## SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, STB= 9.75 PORT= 9.55 AVG= 9.65  
 INERTIAL FILTER PRESS. DROP, STB= 0.75 PORT= 0.55 AVG= 0.65  
 PEERLESS PRESS. DROP, STB= 0.50 PORT= 0.50 AVG= 0.50  
 BARRIER FILTER PRESS.DROP = 0.10  
 PRESS DROP TO ENG., STB= 0.55 PORT= 0.67 AVG= 0.61  
 AVERAGE PLENUM PRESS. STBD= 7.950PORT= 7.625AVG= 7.787



44

SCAV. PRESS DROP = 5.300  
COOLER DUCT DROP = 3.350  
DROP TO HOT SECT. = 11.900  
PRESS. DROP ACROSS OIL COOLER = 1.800

TEST No 12 C2A0807

# INPUT DATA

ALL PRESSURES INCHES OF WATER-ALL TEMP.-DEG.F UNLESS OTHERWISE STATED)

N2= 95.000 95.000 95.000 95.000  
 TOP 20.000 22.000 18.000 21.000  
 STACK VEL. HO.= 0.80 0.80 0.65 0.80 0.80 0.55 0.65 0.60 0.60  
 STACK STATIC HO.= -0.80 -0.95 -0.85 -0.80 -0.90 -0.75 -0.75 -0.90 -0.75  
 FAN VEL. HO.= 7.600 8.200 1.100 7.600  
 FAN STATIC HEAD= 11.000 10.250 8.750 10.000  
 PRESS. AT INERTIAL FILTER-ST80 14.000 12.500 14.000 12.500  
 PRESS. AT INERTIAL FILTER-PORT= 12.000 14.000 12.500 13.500  
 COOLING AIR SPLY PRESS.-ST80 =11.000 PORT =11.000  
 PEERLESS PRESS-ST80=11.500 PORT=11.500  
 PRESS AFT OF PEERLESS-ST80= 9.000 PORT= 9.000  
 PRESS AFT OF BARRIER-ST80= 8.000 PORT= 7.600  
 ENGINE PLENUM PRESS-ST80= 7.20 6.80 6.80 6.20  
 ENGINE PLENUM PRESS-PORT= 6.60 6.50 6.00 6.30  
 FILTER NO.1 SCAV. PRESS.-VEL.HO.= 5.800 STATIC.HO.= 4.700  
 OIL COOLER PRESS.-INLET = 5.500 OUTLET = 0.600  
 HOT SECT. PRESS.-INRO.= 0.0 OUTRO.= 0.0  
 OUTSIDE AIR TEMP.= 81.000

STACK TEMP.= 80.000 80.000 81.000 80.000

FAN DISCHARGE TEMP.= 88.000

ENGINE PLENUM AIR TEMP.= 88.00 96.00

AIR TEMP.-VIC.NO.2.GEAR BOX = 230.000

COOLING AIR TEMP.-ST80.= 113.000 PORT= 130.000

LUBE OIL INPUT TEMP.-PHR.SECT.NO.3 = 87.0000DEG.C NO.4 = 90.0000DEG.C

LUBE OIL INPUT TEMP.,COMB.GEAR,ST8.= 90.0000DEG.C

## ENGINE PERFORMANCE

TEMP= 88.00 ADJ. HP = 0.6478E 03TEMP= 96.00 ADJ. HP= 0.6431E 03

AVERAGE HORSEPOWER--BOTH ENGINES-- 0.6656E 03

ENGINE AIR(BOTH SIDES)-CFM= 0.1690E 05 TAVG1364= 92.000

## STACK PERFORMANCE

AVG STACK TEMP= 80.25 TEMP RISE IN STACK -0.75

STACK PRESSURES VEL= 0.921 STATIC=-0.821 TOTAL HEAD=-0.100

FLOW IN STACK-CFM= 0.2291E 05

## FAN PERFORMANCE

PRESS. RECOVERY WITH OILFRUSER1561 OF VEL NO.1 = 13.43

FAN DISCHARGE PRESS. STATIC=10.000 VEL. HEAD= 6.125 TOTAL HEAD=16.125

FAN PRESS INCREASE=16.225 FAN FLOW CFM= 0.2711E 05 FAN HORSEPOWER= 0.6932E 02

STATIC PRESS COR.= 104.410 TOTAL PRESS. COR.= 15.535

AVG. OF STACK AND FAN FLOW-CFM= 0.2501E 05

## APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

APU AIR FLOW, CFM = 0.1576E 04

INERTIAL FILTER SCAVENGING FLOW-CFM = 0.2099E 04 VEL.-FT/SEC = 0.1637E 03

## SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, ST8= 13.25 PORT= 13.00 AVG= 13.12

INERTIAL FILTER PRESS. DROP, ST8= 1.75 PORT= 1.50 AVG= 1.62

PEERLESS PRESS. DROP, ST8= 2.50 PORT= 2.50 AVG= 2.50

BARRIER FILTER PRESS.DROP = 1.20

PRESS DROP TO ENG., ST8= 1.25 PORT= 1.32 AVG= 1.29

AVERAGE PLENUM PRESS. ST80= 6.750PORT= 6.275AVG= 6.512

46

SCAV. PRESS DROP = 6.800  
COOLER DUCT DROP = 11.000  
DROP TO HOT SECT. = 51500  
PRESS. DROP ACROSS OIL COOLER = 4.900

TEST AB 13 C2B0809

INPUT DATA

ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED

N2= 94.000 94.000 92.500 93.500  
 TOP 35.000 36.000 35.000 37.000  
 STACK VEL. HD.= 1.00 1.10 1.00 0.90 0.90 1.10 1.00 1.00 0.75  
 STACK STATIC HD.= -1.20 -1.30 -1.10 -1.30 -1.40 -1.10 -1.05 -1.10 -1.20  
 FAN VEL. HD.= 7.800 8.200 1.500 8.000  
 FAN STATIC HEAD= 10.000 9.300 8.200 9.200  
 PRESS. AT INERTIAL FILTER-ST80 13.000 11.500 13.000 11.500  
 PRESS. AT INERTIAL FILTER-PORT= 10.500 13.000 11.500 12.500  
 COOLING AIR SPLY PRESS.-ST80 =11.000 PORT=11.000  
 PEERLESS PRESS-ST80=10.000 PORT=10.000  
 PRESS AFT OF PEERLESS-ST80= 7.800 PORT= 7.800  
 PRESS AFT OF BARRIER-ST80= 7.500 PORT= 7.500  
 ENGINE PLENUM PRESS-ST80= 5.00 4.20 4.00 3.80  
 ENGINE PLENUM PRESS-PORT= 5.00 4.00 4.00 4.00  
 FILTER NO.1 SCAV. PRESS.-VEL.HD.= 7.200 STATIC HD.= 1.100  
 OIL COOLER PRESS.-INLET = 4.500 OUTLET = 4.800  
 HOT SECT. PRESS.-INBRO.= 0.500 OUT80.= 0.100  
 OUTSIDE AIR TEMP.= 69.000  
 STACK TEMP.= 74.000 75.000 71.000 71.000  
 FAN DISCHARGE TEMP.= 81.000  
 ENGINE PLENUM AIR TEMP.= 84.00 85.00  
 AIR TEMP.VIC.NO.2-GEAR BOX = 82.000  
 COOLING AIR TEMP.-ST80.= 93.000 PORT= 87.000  
 LUBE OIL INPUT TEMP.-PWR1SECT.NO.3 = 83.000DEG.C NO.4 = 84.000DEG.C  
 LUBE OIL INPUT TEMP..COMB.GEAR, ST8.= 83.000DEG.C

ENGINE PERFORMANCE

TEMP= 84.00 A0J. HP= 0.1130E 04TEMP= 85.00 A0J. HP= 0.1129E 04  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.1157E 04  
 ENGINE AIR(BOTH SIDES)-CFM= 0.1876E 05 TAVG(364)= 84.500

STACK PERFORMANCE

AVG STACK TEMP= 72.75 TEMP RISE IN STACK 3.75  
 STACK PRESSURES VEL= 0.979 STATIC=-1.196 TOTAL HEAD=-0.217  
 FLOW IN STACK-CFM= 0.2655E 05

FAN PERFORMANCE

PRESS. RECOVERY WITH DIFFUSER(561 OF VEL HD.1 = 12.74  
 FAN DISCHARGE PRESS. STATIC= 9.175 VEL. HEAD= 6.375 TOTAL HEAD=15.550  
 FAN PRESS INCREASE=15.767 FAN FLOW CFM= 0.2773E 05 FAN HORSEPOWER= 0.6890E 02  
 STATIC PRESS COR.= 91418 TOTAL PRESS. COR.= 15.793  
 AVG. OF STACK AND FAN FLOW-CFM= 0.2714E 05

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

APU AIR FLOW, CFM = 0.1557E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.2324E 04 VEL.-FT/SEC = 0.1812E 03

SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, ST8= 12.25 PORT= 11.87 AVG= 12.06  
 INERTIAL FILTER PRESS. DROP, ST8= 2.25 PORT= 1.88 AVG= 2.06  
 PEERLESS PRESS. DROP, ST8= 2.20 PORT= 2.20 AVG = 2.20  
 BARRIER FILTER PRESS-DROP = 0.30  
 PRESS DROP TO ENG., ST8= 3.25 PORT= 3.25 AVG= 3.25  
 AVERAGE PLENUM PRESS. ST80= 4.250PORT= 4.250AVG= 4.250

48  
SCAV. PRESS DROP = 8.900  
COOLER DUCT DROP = 11.000  
DROP TO HOT SECT. = 4.500  
PRESS. DROP ACROSS OIL COOLER = -0.300

TEST No. 13 0200809

# INPUT DATA

ALL PRESSURES INCHES OF WATER-ALL TEMP.OEG.F UNLESS OTHERWISE STATED)

N2= 92.500 92.500 92.000 93.000  
 TOP 43.000 43.000 42.000 44.000  
 STACK VEL. HO.= 1.20 1.30 1.00 0.90 0.90 1.10 1.00 1.10 0.80  
 STACK STATIC HO.= -1.80 -2.00 -1.50 -1.60 -1.80 -1.40 -1.50 -1.50 -1.50  
 FAN VEL. HO.= 7.800 10.000 2.000 8.000  
 FAN STATIC HEAD= 9.000 7.000 6.500 7.900  
 PRESS. AT INERTIAL FILTER-ST80 12.000 10.500 12.000 10.500  
 PRESS. AT INERTIAL FILTER-PORT= 10.000 12.000 10.500 12.000  
 COOLING AIR SPLY PRESS.-ST80 =10.500 PORT =10.500  
 PEERLESS PRESS-ST80= 9.500 PORT= 9.000  
 PRESS AFT OF PEERLESS-ST80= 6.300 PORT= 6.300  
 PRESS AFT OF BARRIER-ST80= 6.000 PORT= 6.000  
 ENGINE PLENUM PRESS-ST80= 3.50 2.50 2.40 2.00  
 ENGINE PLENUM PRESS-PORT= 3.50 2.50 2.40 2.40  
 FILTER NO.1 SCAV. PRESS.-VEL.HO.= 7.000 STATIC HO.= 1.000  
 OIL COOLER PRESS.-INLET = 4.500 OUTLET = 0.0  
 HOT SECT. PRESS.-INLET = 0.100 OUTLET = 0.100  
 OUTSIDE AIR TEMP.= 69.000  
 STACK TEMP.= 71.000 74.000 74.000 73.000  
 FAN DISCHARGE TEMP.= 81.000  
 ENGINE PLENUM AIR TEMP.= 83.00 86.00  
 AIR TEMP.VIC.NO.2.GEAR BOX = 81.000  
 COOLING AIR TEMP.-ST80.= 93.000 PORT= 89.000  
 LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 = 85.000OEG.C NO.4 = 87.000OEG.C  
 LUBE OIL INPUT TEMP.-COMB.GEAR.ST8.= 85.000OEG.C

TEMP= 83.00 A.O.J. HP= 0.1344E 04TEMP= 86.00 A.O.J. HP= 0.1342E 04  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.1376E 04  
 ENGINE AIR(BOTH SIDES)-CFM= 0.1961E 05 TAVG(364)= 84.500

AVG STACK TEMP= 73.00  
 STACK PRESSURES VEL= 1.075 STATIC=-1.667 TOTAL HEAD=-0.592  
 FLOW IN STACK-CFM= 0.2739E 05

FAN PERFORMANCE  
 PRESS. RECOVERY WITH OIFFUSER(56) OF VEL HO.1 = 11.49  
 FAN DISCHARGE PRESS. STATIC= 7.600 VEL. HEAD= 6.950 TOTAL HEAD=14.550  
 FAN PRESS INCREASE=15.142 FAN FLOW CFM= 0.2914E 05 FAN HORSEPOWER= 0.6952E 02  
 STATIC PRESS COR.= 7.805 TOTAL PRESS. COR.= 14.755  
 AVG. OF STACK AND FAN FLOW-CFM= 0.2846E 05

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW  
 APU AIR FLOW, CFM = 0.1556E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.2292E 04 VEL.-FT/SEC = 0.1786E 03

SYSTEM PRESSURE DROPS  
 PRESS. AT INERTIAL FILTER, ST8= 11.25 PORT= 11.12 AVG= 11.19  
 INERTIAL FILTER PRESS. DROP, ST8= 1.75 PORT= 2.12 AVG= 1.94  
 PEERLESS PRESS. DROP, ST8= 3.20 PORT= 2.70 AVG = 2.95  
 BARRIER FILTER PRESS.DROP = 0.30  
 PRESS DROP TO ENG., ST8= 3.40 PORT= 3.30 AVG= 3.35  
 AVERAGE PLENUM PRESS. ST80= 2.600PORT= 2.700AVG= 2.650

50

SCAV. PRESS DROP = 8.250  
COOLER DUCT DROP = 10.500  
DROP TO HOT SECT. = 41.500  
PRESS. DROP ACROSS OIL COOLER = 4.500

TEST No. 14 C3B0809

CALL PRESSURES INCHES OF WATER-ALL TEMP. DEG. F UNLESS OTHERWISE STATED)

INPUT DATA

N2= 94.000 93.500 93.500 93.200  
 TOP 34.000 35.000 34.000 36.000  
 STACK VEL. MO.= 0.80 0.80 0.90 0.40 0.80 1.00 0.90 0.75  
 STACK STATIC MO.= -0.20 -0.40 -0.20 -0.20 -0.40 -0.40 -0.10 -0.10  
 FAN VEL. MO.= 0.900 8.000 2.600 8.000  
 FAN STATIC MEAO= 11.000 9.700 9.000 10.000  
 PRESS. AT INERTIAL FILTER-STBD 14.000 12.000 13.000 12.500  
 PRESS. AT INERTIAL FILTER-PORT= 11.000 14.000 12.000 13.500  
 COOLING AIR SPLY PRESS.-STBD =11.500 PORT =11.500  
 PEERLESS PRESS-STBD=11.000 PORT=11.000  
 PRESS AFT OF PEERLESS-STBD= 9.000 PORT= 8.000  
 PRESS AFT OF BARRIER-STBD= 6.200 PORT= 6.200  
 ENGINE PLENUM PRESS-STBD= 5.20 4.80 4.60 4.40  
 ENGINE PLENUM PRESS-PORT= 5.20 4.80 4.20 4.20  
 FILTER NO.1 SCAV. PRESS.=VEL.MO.= 8.000 STATIC MO.= 1.250  
 OIL COOLER PRESS.-INLET = 6.000 OUTLET = 0.900  
 HOT SECT. PRESS.-INRD.= 0.0 OUTD.= 0.0  
 OUTSIDE AIR TEMP.= 73.000  
 STACK TEMP.= 68.000 69.000 68.000 71.000  
 FAN DISCHARGE TEMP.= 74.000  
 ENGINE PLENUM AIR TEMP.= 78.00 80.00  
 AIR TEMP.VIC.NO.2-GEAR BOX = 240.000  
 COOLING AIR TEMP.-STBD.= 78.000 PORT= 91.000  
 LUBE OIL INPUT TEMP.-PRI SECT.NO.3 = 83.000DEG.C NO.4 = 85.000DEG.C  
 LUBE OIL INPUT TEMP.-COMB.GEAR,STB.= 85.000DEG.C

TEMP= 78.00 ADJ. MP= 0.1109E 04  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.1125E 04  
 ENGINE AIR IN BOTH SIDES1-CFM= 0.1437E 05 TAVG(1364)= 79.000

AVG STACK TEMP= 69.00  
 STACK PRESSURES VEL= 0.800 STATIC=-0.233 TOTAL MEAO= 0.567  
 FLOW IN STACK-CFM= 0.2390E 05

FAN PERFORMANCE  
 PRESS. RECOVERY WITH OILFRUSER(561 OF VEL NO.1) = 12.65  
 FAN DISCHARGE PRESS. STATIC= 9.925 VEL. MEAO= 4.875 TOTAL MEAO=14.800  
 FAN PRESS INCREASE=14.233 FAN FLOW CFM= 0.2339E 05 FAN HORSEPOWER= 0.5246E 02  
 STATIC PRESS COR.= 10.116 TOTAL PRESS. COM.= 14.991  
 AVG. OF STACK AND FAN FLOW-CFM= 0.2365E 05

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW  
 APU AIR FLOW, CFM = 0.1569E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.2434E 04 VEL.-FT/SEC = 0.1897E 03

SYSTEM PRESSURE DROPS  
 PRESS. AT INERTIAL FILTER, STB= 12.87 PORT= 12.62 AVG= 12.75  
 INERTIAL FILTER PRESS. DROP, STB= 1.88 PORT= 1.62 AVG= 1.75  
 PEERLESS PRESS. DROP, STB= 3.00 PORT= 3.00 AVG= 3.00  
 BARRIER FILTER PRESS. DROP = 1.80  
 PRESS DROP TO ENG., STB= 1.40 PORT= 1.60 AVG= 1.50  
 AVERAGE PLENUM PRESS. STB= 4.800PORT= 4.600AVG= 4.700



52

SCAV. PRESS DROP = 9.800  
COOLER DUCT DROP = 11.500  
DROP TO HOT SECT. = 61.000  
PRESS. DROP ACROSS OIL COOLER = 5.100

TEST NO. 14 C380809

## INPUT DATA

TALL PRESSURES INCHES OF WATER-ALL TEMP. DEG. F UNLESS OTHERWISE STATED)

N2= 92.500 92.500 92.000 93.000  
 TOP 45.000 45.000 45.000 46.000  
 STACK VEL. HO.= 1.30 0.90 0.50 1.10 1.40 1.20 1.40 1.20 1.40 1.20 1.20 0.0  
 STACK STATIC HO.= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 FAN VEL. HO.= 8.200 8.200 3.800 8.000  
 FAN STATIC HEAD= 10.000 9.500 8.400 9.400  
 PRESS. AT INERTIAL FILTER-ST80 13.500 12.000 13.000 12.000  
 PRESS. AT INERTIAL FILTER-PORT= 10.500 13.500 11.500 13.000  
 COOLING AIR SPLY PRESS.-ST80 =12.000 PUKT =11.500  
 PEERLESS PRESS-ST80=10.000 PORT=10.000  
 PRESS AFT OF PEERLESS-ST80= 7.600 PORT= 7.400  
 PRESS AFT OF BARRIER-ST80= 7.200 PORT= 7.200  
 ENGINE PLENUM PRESS-ST80= 4.80 3.20 3.00 3.00  
 ENGINE PLENUM PRESS-PORT= 4.20 3.00 3.00 3.00  
 FILTER NO.1 SCAV. PRESS.-VEL.HO.= 8.200 STATIC HO.= 0.800  
 OIL COOLER PRESS.-INLET = 6.000 OUTLET = 0.800  
 HOT SECT. PRESS.-INRO.= 0.0 OUT80.= 0.0  
 OUTSIDE AIR TEMP.= 73.000  
 STACK TEMP.= 68.000 68.000 66.000 69.000  
 FAN DISCHARGE TEMP.= 75.000  
 ENGINE PLENUM AIR TEMP.= 75.00 79.00  
 AIR TEMP.VIC.NO.2.GEAR BOX = 195.000  
 COOLING AIR TEMP.-ST80.= 93.000 PORT= 89.000  
 LUBE OIL INPUT TEMP.-PMR.SECT.NO.3 = 85.00000EG.C NO.4 = 87.00000EG.C  
 LUBE OIL INPUT TEMP.-COMB.GEAR,ST8.= 87.00000EG.C

1 TEMP= 75.00 ADJ. HP= 0.1419E 04TEMP= 79.00 ADJ. HP= 0.1413E 04  
 3 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.1440E 04  
 ENGINE AIR(80TH SIOES)-CFM= 0.1976E 05 TAVG13E4)= 77.000

STACK PERFORMANCE  
 AVG STACK TEMP= 67.75  
 STACK PRESSURES VEL= 1.175 STATIC= 0.0 TOTAL HEAD= 1.175  
 FLOW IN STACK-CFM= 0.2878E 05

FAN PERFORMANCE  
 PRESS. RECOVERY WITH DIFFUSER1561 OF VEL HO.1 = 13.27  
 FAN DISCHARGE PRESS. STATIC= 9.325 VEL. HEAD= 7.050 TOTAL HEAD=16.375  
 FAN PRESS INCREASE=15.200 FAN FLOW CFM= 0.2986E 05 FAN HORSEPOWER= 0.7153E 02  
 STATIC PRESS COR.= 9.482 TOTAL PRESS. COR.= 16.532  
 AVG. OF STACK AND FAN FLOW-CFM= 0.2932E 05

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW  
 APU AIR FLOW, CFM = 0.1535E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.2466E 04 VEL.-FT/SEC = 0.1923E 03

SYSTEM PRESSURE OROPS  
 PRESS. AT INERTIAL FILTER, ST8= 12.62 PORT= 12.12 AVG= 12.37  
 INERTIAL FILTER PRESS. OROP, ST8= 2.62 PORT= 2.12 AVG= 2.37  
 PEERLESS PRESS. OROP, ST8= 2.40 PORT= 2.60 AVG = 2.50  
 BARRIER FILTER PRESS.-OROP = 0.30  
 PRESS OROP TO ENG., ST8= 3.70 PORT= 3.90 AVG= 3.80  
 AVERAGE PLENUM PRESS. ST90= 3.500PORT= 3.300AVG= 3.400

54

SCAV. PRESS DROP = 9.200  
COOLER DUCT DROP = 11.750  
DROP TO HOT SECT. = 61.000  
PRESS. DROP ACROSS OIL COOLER =

5.200

TEST W. 15-1 AC280810

# INPUT DATA

(ALL PRESSURES INCHES OF WATER-ALL TEMP. DEG. F UNLESS OTHERWISE STATED)

N2= 93.000 93.000 93.000 93.500  
 TOP 35.000 37.000 35.000 38.000  
 STACK VEL. HO.= 0.50 0.60 0.50 0.40 0.25 0.40 0.40 0.50 0.50 -0.70  
 STACK STATIC HO.= -0.70 -0.80 -0.60 -0.80 -0.80 -0.60 -0.50 -0.90 -0.90 -0.70  
 FAN VEL. HO.= 7.000 7.400 0.600 2.500  
 FAN STATIC HEAO= 10.000 9.800 9.000 9.100  
 PRESS. AT INERTIAL FILTER-ST80 13.000 12.000 12.500 12.000 12.000  
 PRESS. AT INERTIAL FILTER-PORT= 10.500 12.500 12.000 12.500  
 COOLING AIR SPLY PRESS.-ST80 =11.500 PORT =11.000  
 PEERLESS PRESS-ST80=10.500 PORT=10.500  
 PRESS.AFT OF PEERLESS-ST80= 8.500 PORT= 8.000  
 PRESS.AFT OF BARRIER-ST80= 6.000 PORT= 6.000  
 ENGINE PLENUM PRESS-ST80= 6.00 5.00 4.80 5.00  
 ENGINE PLENUM PRESS-PORT= 4.50 4.80 4.20 4.20  
 FILTER NO.1 SCAV. PRESS.-VEL.HO.= 0.0 STATIC HO.= 0.700  
 OIL COOLER PRESS.-INLET = 5.400 OUTLET = 0.200  
 HOT SECT. PRESS.-INBRO.= 0.0 OUTBO.= 0.0  
 OUTSIDE AIR TEMP.= 80.000  
 STACK TEMP.= 70.000 70.000 70.000 73.000  
 FAN DISCHARGE TEMP.= 81.000  
 ENGINE PLENUM AIR TEMP.= 84.00 87.00  
 AIR TEMP.VIC.NO.2-GEAR BOX = 75.000  
 COOLING AIR TEMP.-ST80.= 86.000 PORT= 88.000  
 LUBE OIL INPUT TEMP.-PWRJSECT.NO.3 = 80.000DEG.C NO.4 = 82.000DEG.C  
 LUBE OIL INPUT TEMP.-COMB.GEAR.STB.= 80.000DEG.C

1 TEMP= 84.00 ADJ. HP= 0.1141E 04TEMP= 87.00 ADJ. HP= 0.1138E 04  
 38 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.1168E 04  
 ENGINE AIR(BOTH SIDES)-CFM= 0.1882E 05 TAVG(364)= 85.500

AVG STACK TEMP= 70.75  
 STACK PRESSURES VEL= 0.462 STATIC=-0.708 TOTAL HEAO=-0.246  
 FLOW IN STACK-CFM= 0.1815E 05

FAN PERFORMANCE  
 PRESS. RECOVERY WITH OIFFUSER(561 OF VEL HO.) = 11.92  
 FAN DISCHARGE PRESS. STATIC= 9.475 VEL. HEAO= 4.375 TOTAL HEAO=13.850  
 FAN PRESS INCREASE=14.096 FAN FLOW CFM= 0.2201E 05 FAN HORSEPOWER= 0.4890E 02  
 STATIC PRESS COR.= 9.690 TOTAL PRESS. COR.= 14.065  
 AVG. OF STACK AND FAN FLOW-CFM= 0.2008E 05

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW  
 APU AIR FLOW, CFM = 0.1598E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.0 VEL.-FT/SEC = 0.0

SYSTEM PRESSURE DROPS  
 PRESS. AT INERTIAL FILTER, STB= 12.37 PORT= 11.87 AVG= 12.12  
 INERTIAL FILTER PRESS. DROP, STB= 1.88 PORT= 1.37 AVG= 1.62  
 PEERLESS PRESS. DROP, STB= 2.00 PORT= 2.50 AVG = 2.25  
 BARRIER FILTER PRESS.DROP = 2.25  
 PRESS DROP TO ENG., STB= 0.80 PORT= 1.58 AVG= 1.19  
 AVERAGE PLENUM PRESS. ST80= 5.200PORT= 4.425AVG= 4.812

56

SCAV. PRESS DROP = 9.800  
COOLER DUCT DROP = 11.250  
DROP TO HOT SECT. = 5.400  
PRESS. DROP ACROSS OIL COOLER = 5.200

TEST NO 15-1 AC2C0810

## INPUT DATA

ALL PRESSURES INCHES OF WATER-ALL TEMP. DEG. F UNLESS OTHERWISE STATED)

N2= 93.000 93.000 91.500 92.500  
 TOP 42.000 43.000 42.000 46.000  
 STACK VEL. HD.= 0.65 0.70 0.65 0.30 0.20 0.30 0.50 0.50 0.70  
 STACK STATIC HD.= -0.95 -1.00 -0.90 -0.95 -0.90 -0.90 -0.55 -1.00 -0.80  
 FAN VEL. HD.= 8.800 8.500 1.000 7.300  
 FAN STATIC HEAD= 11.200 11.000 9.500 9.900  
 PRESS. AT INERTIAL FILTER-ST80= 13.500 13.000 14.000 13.500  
 PRESS. AT INERTIAL FILTER-PORT= 12.000 14.000 13.000 13.500  
 COOLING AIR SPLY PRESS.-S18D=11.500 PORT=11.000  
 PEERLESS PRESS-ST80=11.500 PORT=11.500  
 PRESS AFT OF PEERLESS-ST80= 9.000 PORT= 0.0  
 PRESS AFT OF BARRIER-ST80= 6.200 PORT= 6.200  
 ENGINE PLENUM PRESS-ST80= 5.20 5.00 4.80 4.80  
 ENGINE PLENUM PRESS-PORT= 5.00 5.00 4.40 4.40  
 FILTER NO.1 SCAV. PRESS.-VEL.HD.= 0.500 STATIC HD.= 0.0  
 OIL COOLER PRESS.-INLET = 5.200 OUTLET = 0.200  
 HOT SECT. PRESS.-INBRO.= 0.0 OUT80.= 0.0  
 OUTSIDE AIR TEMP.= 80.000  
 STACK TEMP.= 71.000 71.000 70.000 72.000  
 FAN DISCHARGE TEMP.= 81.000  
 ENGINE PLENUM AIR TEMP.= 83.00 85.00  
 AIR TEMP-VIC.NO.2-GEAR BOX = 78.000  
 COOLING AIR TEMP.-ST80.= 90.000 PORT= 90.000  
 LUBE OIL INPUT TEMP.-PHR1SECT.NO.3 = 83.0000EG.C NO.4 = 85.0000EG.C  
 LUBE OIL INPUT TEMP.-CON3-GEAR,ST8.= 83.0000EG.C

## ENGINE PERFORMANCE

1 TEMP= 83.00 ADJ. HP= 0.1353E 04 TEMP= 85.00 ADJ. HP= 0.1351E 04  
 2 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.1384E 04  
 3 ENGINE AIR(BOTH SIDES)-CFM= 0.1964E 05 TAVG(1364)= 84.000

## STACK PERFORMANCE

AVG STACK TEMP= 71.00  
 STACK PRESSURES VEL= 0.537 STATIC=-0.900 TOTAL HEAD=-0.362  
 FLOW IN STACK-CFM= 0.1936E 05

## FAN PERFORMANCE

PRESS. RECOVERY WITH OIFRUSER(561 OF VEL HO.1) = 13.98  
 FAN DISCHARGE PRESS. STATIC=10.400 VEL. HEAD= 6.400 TOTAL HEAD=16.800  
 FAN PRESS INCREASE=17.162 FAN FLOW CFM= 0.2733E 05 FAN HORSEPOWER= 0.7391E 02  
 STATIC PRESS COR.= 101.641 TOTAL PRESS. COR.= 17.041  
 AVG. OF STACK AND FAN FLOW-CFM= 0.2334E 05

## APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

APU AIR FLOW, CFM = 0.1549E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.6125E 03 VEL.-FT/SEC = 0.4774E 02

## SYSTEM PRESSURE DROPS

PRESS.-AT INERTIAL FILTER, ST8= 13.50 PORT= 13.12 AVG= 13.31  
 INERTIAL FILTER PRESS. DROP, ST8= 2.00 PORT= 1.62 AVG= 1.81  
 PEERLESS PRESS. DROP, ST8= 2.50 PORT= 11.50 AVG = 7.00  
 BARRIER FILTER PRESS. DROP = -1.70  
 PRESS DROP TO ENG., ST8= 1.25 PORT= 1.50 AVG= 1.38  
 AVERAGE PLENUM PRESS. ST80= 4.950PORT= 4.700AVG= 4.825

58

SCAV. PRESS DROP = 11.500  
COOLER DUCT DROP = 11.250  
DROP TO HOT SECT. = 51200  
PRESS. DROP ACROSS OIL COOLER = 5.000

TEST No 15-2 BC2B0810

ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

INPUT DATA

N2= 92.500 92.500 92.000 92.500  
 TOP 35.000 36.000 35.000 37.000  
 STACK VEL. MD.= 0.70 0.75 0.65 0.60 0.50 0.40 0.35 0.55  
 STACK STATIC MD.= -1.10 -1.00 -0.90 -1.10 -0.90 -1.00 -1.00 -0.80

FAN VEL. MD.= 8.000 8.200 1.400 3.500  
 FAN STATIC HEAD= 11.000 11.000 9.500 10.000  
 PRESS. AT INERTIAL FILTER-ST80 14.000 13.000 14.000 13.000  
 PRESS. AT INERTIAL FILTER-PORT= 12.000 14.000 13.300 13.500  
 COOLING AIR SPLY PRESS.-ST80 =11.000 PORT =10.000  
 PEERLESS PRESS-ST80=11.500 PORT=11.000

PRESS AFT OF PEERLESS-ST80= 9.000 PORT= 0.0  
 PRESS AFT OF BARRIER-ST80= 6.800 PORT= 6.000  
 ENGINE PLENUM PRESS-ST80= 5.80 5.50 5.40 5.50  
 ENGINE PLENUM PRESS-PORT= 5.50 5.00 5.00  
 FILTER NO.1 SCAV. PRESS.-VEL.MD.= 0.300 STATIC MD.= 0.0  
 OIL COOLER PRESS.-INLET = 5.500 OUTLET = 0.0  
 HOT SECT. PRESS.-INBRD.= 0.0 OUTBD.= 0.0

OUTSIDE AIR TEMP.= 80.000  
 STACK TEMP.= 90.000 80.000 78.000 84.000  
 FAN DISCHARGE TEMP.= 83.000  
 ENGINE PLENUM AIR TEMP.= 97.00 96.00

AIR TEMP.VIC.NO.2.GEAR BOX = 83.000  
 COOLING AIR TEMP.-ST80.= 97.000 PORT= 95.000  
 LUBE OIL INPUT TEMP.-PR&SECT.NO.3 = 85.000DEG.C NO.4 = 88.000DEG.C  
 LUBE OIL INPUT TEMP.,COMB.GEAR,STB.= 85.000DEG.C

ENGINE PERFORMANCE

1 TEMP= 97.00 ADJ. HP= 0.1103E 04TEMP= 96.00 ADJ. HP= 0.1104E 04  
 2 AVERAGE HORSEPOWER--80TH ENGINES-- 0.1143E 04  
 ENGINE AIR(80TH SIDES)-CFM= 0.1887E 05 TAVG1364= 96.500

STACK PERFORMANCE

AVG STACK TEMP= 83.08 TEMP RISE IN STACK 3.00  
 STACK PRESSURES VEL= 0.592 STATIC=-0.942 TOTAL HEAD=-0.350  
 FLOW IN STACK-CFM= 0.2073E 05

FAN PERFORMANCE

PRESS. RECOVERY WITH OIFRUSER(561 OF VEL NO.1) = 13.33  
 FAN DISCHARGE PRESS. STATIC=10.375 VEL. HEAD= 5.275 TOTAL HEAD=15.650  
 FAN PRESS INCREASE=16.000 FAN FLOW CFM= 0.2522E 05 FAN HORSEPOWER= 0.6359E 02  
 STATIC PRESS COR.= 101.855 TOTAL PRESS. COR.= 16.130  
 AVG. OF STACK AND FAN FLOW-CFM= 0.2298E 05

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

APU AIR FLOW, CFM = 0.1572E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.4753E 03 VEL.-FT/SEC = 0.3705E 02

SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, ST8= 13.50 PORT= 13.12 AVG= 13.31  
 INERTIAL FILTER PRESS. DROP, ST8= 2.00 PORT= 2.12 AVG= 2.06  
 PEERLESS PRESS. DROP, ST8= 2.50 PORT= 11.00 AVG= 6.75  
 BARRIER FILTER PRESS.DROP = -1.90  
 PRESS DROP TO ENG., ST8= 1.25 PORT= 0.75 AVG= 1.00  
 AVERAGE PLENUM PRESS. ST8= 5.550PORT= 5.250AVG= 5.400



62

SCAV. PRESS DROP = 11.250  
COOLER OUCT DROP = 10.500  
DROP TO HOT SECT. = 5.500  
PRESS. DROP ACROSS OIL COOLER = 5.500

TEST No. 15-2 B22C0810

INPUT DATA  
(ALL PRESSURES INCHES OF WATER-ALL TEMP.OEG.F UNLESS OTHERWISE STATED)

N2= 92.000 92.000 91.000 92.000  
TOP 43.000 44.000 42.000 45.000  
STACK VEL. MD.= 0.75 0.80 0.70 0.60 0.70 0.50 0.40 0.50 0.50  
STACK STATIC MD.= -1.00 -1.00 -0.80 -0.90 -0.70 -0.80 -0.10 -1.10 -1.05  
FAN VEL. MD.= 7.00 8.00 1.100 6.500  
FAN STATIC HEAD= 11.000 11.000 9.200 9.700  
PRESS. AT INERTIAL FILTER-ST80 14.000 12.500 13.500 12.500  
PRESS. AT INERTIAL FILTER-PORT= 12.000 13.500 12.500 13.500  
COOLING AIR SPLY PRESS.-ST80 =11.000 PORT =10.500  
PEERLESS PRESS-ST80=11.000 PORT=11.000  
PRESS AFT OF PEERLESS-ST80= 8.000 PORT= 0.0  
PRESS AFT OF BARRIER-ST80= 5.800 PORT= 5.000  
ENGINE PLENUM PRESS-ST80= 4.80 4.00 4.00 4.40  
ENGINE PLENUM PRESS-PORT= 4.50 4.00 3.80 3.80  
FILTER NO.1 SCAV. PRESS.-VEL.MD.= 0.300 STATIC MD.= -0.100  
OIL COOLER PRESS.-INLET = 5.400 OUTLET = 0.0  
HOT SECT. PRESS.-INRRO.= 0.0 OUTRO.= 0.0  
OUTSIDE AIR TEMP.= 80.000  
STACK TEMP.= 82.000 82.000 81.000 84.000  
FAN DISCHARGE TEMP.= 93.000  
ENGINE PLENUM AIR TEMP.= 93.00 95.00  
AIR TEMP.VIC.NO.2.GEAR BOX = 87.000  
COOLING AIR TEMP.-ST80.= 97.000 PORT= 98.000  
LUBE OIL INPUT TEMP.-PWR1 SECT.NO.3 = 85.000OEG.C NO.4 = 87.000OEG.C  
LUBE OIL INPUT TEMP.-COMB.GEAR,ST8.= 85.000OEG.C

ENGINE PERFORMANCE  
TEMP= 93.00 ADJ. HP= 0.1338E 04TEMP= 95.00 A0J. HP= 0.1335E 04  
AVERAGE HORSEPOWER--BOTH ENGINES-- 0.1381E 04  
ENGINE AIR(BOTH SIDES)-CFM= 0.1976E 05 TAVG(3&4)= 94.000

STACK PERFORMANCE  
AVG STACK TEMP= 82.25  
TEMP RISE IN STACK 2.25  
STACK PRESSURES VEL = 0.642  
STATIC=-0.887 TOTAL HEAD=-0.246  
FLOW IN STACK-CFM= 0.2159E 05

FAN PERFORMANCE  
PRESS. RECOVERY WITH DIFFUSER(561 OF VEL MD.) = 13.50  
FAN DISCHARGE PRESS. STATIC=10.225 VEL. HEAD= 5.850 TOTAL HEAD=16.075  
FAN PRESS INCREASE=16.321 FAN FLOW CFM= 0.2657E 05 FAN HORSEPOWER= 0.6833E 02  
STATIC PRESS COR.= 104683 TOTAL PRESS. COR.= 16.533  
AVG. OF STACK AND FAN FLOW-CFM= 0.2408E 05

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW  
APU AIR FLOW, CFM = 0.1592E 04  
INERTIAL FILTER SCAVENGING FLOW-CFM = 0.4797E 03 VEL.-FT/SEC = 0.3739E 02

SYSTEM PRESSURE DROPS  
PRESS. AT INERTIAL FILTER, ST8= 13.12 PORT= 12.87 AVG= 13.00  
INERTIAL FILTER PRESS. DROP, ST8= 2.12 PORT= 1.88 AVG= 2.00  
PEERLESS PRESS. DROP, ST8= 3.00 PORT= 11.00 AVG = 7.00  
BARRIER FILTER PRESS.DROP = -1.40  
PRESS DROP TO ENG., ST8= 1.50 PORT= 0.98 AVG= 1.24  
AVERAGE PLENUM PRESS. ST8= 4.300PORT= 4.025AVG= 4.162

62

SCAV. PRESS DROP = 11.100  
COOLER DUCT DROP = 10.750  
DROP TO HOT SECT. = 5.400  
PRESS. DROP ACROSS OIL COOLER = 5.400

TEST NO. 15-3 CC200810

## INPUT DATA

ALL PRESSURES INCHES OF WATER-ALL TEMP.OEG.F UNLESS OTHERWISE STATED)

N2= 92.500 92.500 92.500 93.500  
 TOP 35.000 36.000 31.000 33.000  
 STACK VEL. HD.= 1.10 1.40 1.70 1.50 1.30 1.40 1.30 1.40 1.30 1.40 1.30  
 1 STACK STATIC HD.= -1.40 -1.50 -1.70 -1.40 -1.10 -1.50 -1.30 -1.50 -1.30 -1.50 -1.10  
 FAN VEL. HD.= 7.200 7.400 3.000 7.200  
 FAN STATIC HEAD= 8.900 8.200 6.700 8.000  
 PRESS. AT INERTIAL FILTER-ST80 12.500 11.000 12.000 10.000  
 PRESS. AT INERTIAL FILTER-PORT= 10.000 12.000 10.500 11.000  
 COOLING AIR SPLY PRESS.-ST80 =10.500 PORT =10.500  
 PEERLESS PRESS-ST80= 9.500 PORT= 9.500  
 PRESS AFT OF PEERLESS-ST80= 6.800 PORT= 0.0  
 PRESS AFT OF BARRIER-ST80= 5.500 PORT= 4.000  
 ENGINE PLENUM PRESS-ST80= 3.40 2.50 2.80 2.20  
 ENGINE PLENUM PRESS-PORT= 3.00 2.50 2.40 2.40  
 FILTER NO.1 SCAV. PRESS.-VEL.HD.= 0.0 STATIC HD.= 0.900  
 OIL COOLER PRESS.-INLET & 5.000 OUTLET = 0.100  
 HOT SECT. PRESS.-INBRO.= 0.0 OUTBO.= 0.0  
 OUTSIDE AIR TEMP.= 80.000  
 STACK TEMP.= 103.000 112.000 104.000 103.000  
 FAN DISCHARGE TEMP.= 117.000  
 ENGINE PLENUM AIR TEMP.= 116.00 117.00  
 AIR TEMP.VIC.NO.2.GEAR BOX = 116.000  
 COOLING AIR TEMP.-ST80.= 125.000 PORT= 117.000  
 LUBE OIL INPUT TEMP.-PWR/SECT.NO.3 = 93.000OEG.C NO.4 = 95.000OEG.C  
 LUBE OIL INPUT TEMP.-COMB.GEAR,ST8.= 93.000OEG.C

21

## ENGINE PERFORMANCE

TEMP= 116.00 A.O.J. MP= 0.1028E 04TEMP= 117.00 A.O.J. MP= 0.1027E 04  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.1083E 04  
 ENGINE AIR(BOTH SIDES)-CFM= 0.1890E 05 TAVG(364)= 116.500

## STACK PERFORMANCE

AVG STACK TEMP= 105.50 TEMP RISE IN STACK 25.50  
 STACK PRESSURES VEL= 1.308 STATIC=-1.375 TOTAL HEAD=-0.067  
 FLOW IN STACK-CFM= 0.3158E 05

## FAN PERFORMANCE

PRESS. RECOVERY WITH OIFRUSER(561 OF VEL NO.1 = 11.42  
 FAN DISCHARGE PRESS. STATIC= 7.950 VEL. HEAD= 6.200 TOTAL HEAD=14.150  
 FAN PRESS INCREASE=14.217 FAN FLOW CFM= 0.2890E 05 FAN HORSEPOWER= 0.6473E 02  
 STATIC PRESS COR.= 8.663 TOTAL PRESS. COR.= 14.863  
 AVG. OF STACK AND FAN FLOW-CFM= 0.3024E 05

## APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

APU AIR FLOW, CFM = 0.1668E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.0 VEL.-FT/SEC = 0.0

## SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, ST8= 11.37 PORT= 10.87 AVG= 11.12  
 INERTIAL FILTER PRESS. DROP, ST8= 1.88 PORT= 1.37 AVG= 1.62  
 PEERLESS PRESS. DROP, ST8= 2.70 PORT= 9.50 AVG = 6.10  
 BARRIER FILTER PRESS.DROP = -1.35  
 PRESS DROP TO ENG., ST8= 2.78 PORT= 1.43 AVG= 2.10  
 AVERAGE PLENUM PRESS. ST8= 2.725PORT= 2.575AVG= 2.650

64

SCAV. PRESS DROP = 8.600  
COOLER DUCT DROP = 10.500  
DROP TO HOT SECT. = 51.000  
PRESS. DROP ACROSS OIL COOLER = 4.900

TEST NO. 16-1 C180911

## INPUT DATA

ALL PRESSURES INCHES OF WATER-ALL TEMP. DEG. F UNLESS OTHERWISE STATED)

N2= 95.000 95.000 95.000 95.000  
 TOP 22.000 24.000 21.000 23.000  
 STACK VEL. MD.= 0.30 0.10 0.40 0.30 0.40 0.70 0.75 0.60 0.70  
 STACK STATIC MD.= -1.50 -0.60 -1.50 -1.80 -2.30 -1.40 -1.30 -1.60 -1.20  
 FAN VEL. MD.= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 FAN STATIC HEAD= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 PRESS. AT INERTIAL FILTER-STRO= 12.500 12.000 11.000 13.000 13.000 13.000  
 PRESS. AT INERTIAL FILTER-PORT= 11.000 13.000 2.500 12.500  
 COOLING AIR SPLY PRESS.-STRO= 9.500 PORT= 8.000  
 PEERLESS PRESS.-STRO= 9.500 PORT= 9.000  
 PRESS AFT OF PEERLESS-STRO= 8.000 PORT= 8.000  
 PRESS AFT OF BARRIER-STRO= 6.800 PORT= 6.500  
 ENGINE PLENUM PRESS.-STRO4 4.00 4.00 4.50 5.50  
 ENGINE PLENUM PRESS.-PORT= 4.00 4.00 4.00 4.00  
 FILTER NO.1 SCAV. PRESS.-VEL MD.= 7.500 STATIC MD.= 0.0  
 OIL COOLER PRESS.-INLET= 5.000 OUTLET= 0.0  
 HOT SECT. PRESS.-INBRD.= 0.0 OUTRD.= 0.0  
 OUTSIDE AIR TEMP.= 72.000  
 STACK TEMP.= 97.000 101.000 100.000 90.000  
 FAN DISCHARGE TEMP.= 107.000  
 ENGINE PLENUM AIR TEMP.= 106.00 109.60  
 AIR TEMP. VIC. NO.2 GEAR BOX = 111.000  
 COOLING AIR TEMP.-STRO.= 101.000 PORT= 0.0  
 LUBE OIL INPUT TEMP.-PWR1SECT.NO.3 = 0.0 DEG.C MD.4 = 0.0 DEG.C  
 LUBE OIL INPUT TEMP.-COMB.GEAR.STB.= 0.0 DEG.C

1 TEMP= 104.00 ADJ. MP= 0.7094E 03TEMP= 109.60 ADJ. MP= 0.7059E 03  
 2 AVERAGE HORSEPOWER--ROTH ENGINE S-- 0.7396E 03  
 3 ENGINE AIR BOTH SIDES1-CFM= 0.1742E 05 TAVG13641= 106.800

STACK PERFORMANCE  
 AVG STACK TEMP= 97.00 TEMP RISE IN STACK 25.00  
 STACK PRESSURES VEL= 0.596 STATIC=-1.450 TOTAL HEAD=-0.854  
 FLOW IN STACK-CFM= 0.2065E 05

FAN PERFORMANCE  
 PRESS. RECOVERY WITH DIFFUSER1561 OF VEL MD.1 = 0.0  
 FAN DISCHARGE PRESS. STATIC= 0.0 VEL. HEAD= 0.0 TOTAL HEAD= 0.0  
 FAN PRESS INCREASE= 0.854 FAN FLOW CFM= 0.0 FAN HORSEPOWER= 0.0  
 STATIC PRESS COR.= 0.0 TOTAL PRESS. COR.= 0.0  
 AVG. OF STACK AND FAN FLOW-CFM= 0.1032E 05

## APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

OA2101 PROGRAM INTERRUPT 0.0 PSM 15 FF55000F6201FECA  
 APU AIR FLOW, CFM = 0.2243E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.2428E 04 VEL.-FT/SEC = 0.1893E 03

SYSTEM PRESSURE DROPS  
 PRESS. AT INERTIAL FILTER, STB= 12.12 PORT= 9.75 AVG= 10.94  
 INERTIAL FILTER PRESS. DROP, STB= 2.62 PORT= 0.75 AVG= 1.69  
 PEERLESS PRESS. DROP, STB= 1.50 PORT= 1.00 AVG= 1.25  
 BARRIER FILTER PRESS. DROP = 1.35

66

PRESS DROP TO ENG., ST8= 2.30      PORT= 2.50      AVG= 2.40  
 AVERAGE PLENUM PRESS.      4.500PORT=      4.000AVG=      4.250  
 SCAV. PRESS DROP= 9.250  
 COOLER OUCT DROP= 8.750  
 DROP TO HOT SECT.= 5.000  
 PRESS. DROP ACROSS OIL COOLER = 5.000

TEST NO. 16-1 010911

## INPUT DATA

(ALL PRESSURES INCHES OF WATER-ALL TEMP.OEG.F UNLESS OTHERWISE STATED)

N2= 93.000 93.000 93.900 93.000  
 TOP 29.000 30.000 30.000 31.000  
 STACK VEL. HD.= 0.60 0.30 0.60 0.20 0.70 0.80 0.70 0.60 1.00  
 STACK STATIC HD.= -1.60 -0.90 -1.40 -1.60 -1.30 -1.30 -1.90 -1.40  
 FAN VEL. HD.= 0.0 0.0 0.0 0.0  
 FAN STATIC HEAD= 0.0 0.0 0.0 0.0  
 PRESS. AT INERTIAL FILTER-ST80 12.000 10.500 12.500 9.000  
 PRESS. AT INERTIAL FILTER-PORT= 10.000 12.500 10.000 10.500  
 COOLING AIR SPLY PRESS.-ST80 =10.000 .PORT = 9.000  
 PEERLESS PRESS-ST80= 8.000 .PORT= 8.000  
 PRESS AFT OF PEERLESS-ST80= 7.000 .PORT= 7.000  
 PRESS AFT OF BARRIER-ST80= 5.000 .PORT= 5.000  
 ENGINE PLENUM PRESS-ST80= 3.50 3.50 3.60 4.00  
 ENGINE PLENUM PRESS-PORT= 4.00 3.50 3.60 3.60  
 FILTER NO.1 SCAV. PRESS.-VEL.HD.= 7.500 STATIC HD.= 0.0  
 OIL COOLER PRESS.-INLET = 5.000 OUTLET = 0.0  
 HOT SECT. PRESS.-INBRD.= 0.0 OUT80.= 0.0  
 OUTSIDE AIR TEMP.= 72.000  
 STACK TEMP.= 91.000 115.000 101.000 84.000  
 FAN DISCHARGE TEMP.= 90.000  
 ENGINE PLENUM AIR TEMP.= 98.90 100.00  
 AIR TEMP-VIC NO.2-GEAR BOX = 90.000  
 COOLING AIR TEMP.-ST80.= 96.000 .PORT= 0.0  
 LUBE OIL INPUT TEMP.-PMR,SECT.NO.3 = 0.0 OEG.C NO.4 = 0.0 OEG.C  
 LUBE OIL INPUT TEMP.-COMB.GEAR,ST8.= 0.0 DEG.C

## ENGINE PERFORMANCE

1. TEMP= 98.90 ADJ. HP= 0.9302E 03TEMP= 100.00 ADJ. HP= 0.9293E 03  
 2. AVERAGE HORSEPOWER--BOTH ENGINES-- 0.9653E 03  
 ENGINE AIR(BOTH SIDES)-CFM= 0.1823E 05 TAVG(3&4)= 99.450

## STACK PERFORMANCE

AVG STACK TEMP= 97.75  
 STACK PRESSURES VEL= 0.608 TEMP RISE IN STACK 25.75  
 FLOW IN STACK-CFM= 0.2110E 05  
 STATIC=-1.483 TOTAL HEAD=-0.875

## FAN PERFORMANCE

PRESS. RECOVERY WITH DIFFUSER(561 OF VEL HD.) = 0.0  
 FAN DISCHARGE PRESS. STATIC= 0.0 VEL. HEAD= 0.0 TOTAL HEAD= 0.0  
 FAN PRESS INCREASE= 0.875 FAN FLOW CFM= 0.0 FAN HORSEPOWER= 0.0  
 STATIC PRESS COR.= 0.0 TOTAL PRESS. COR.= 0.0  
 AVG. OF STACK AND FAN FLOW-CFM= 0.1055E 05

## APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

0A2101 PROGRAM INTERRUPT OLO PSM IS FF55000F620IFECA  
 APU AIR FLOW, CFM = 0.2176E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.2392E 04 VEL.-FT/SEC = 0.1864E 03

## SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, ST8= 11.00 .PORT= 10.75 AVG= 10.87  
 INERTIAL FILTER PRESS. DROP, ST8= 3.00 .PORT= 2.75 AVG= 2.87  
 PEERLESS PRESS. DROP, ST8= 1.00 .PORT= 1.00 AVG = 1.00  
 BARRIER FILTER PRESS.DROP = 2.00



28

PRESS DROP TO ENG. STB= 1.35      PORT= 1.33      AVG= 1.34  
AVERAGE PLENUM PRESS. STBD= 3.650PORT= 3.675AVG= 3.662  
SCAN. PRESS DROP= 8.000  
COOLER DUCT DROP= 9.500  
DROP TO HOT SECT.= 5.000  
PRESS. DROP ACROSS OIL COOLER = 5.000

TEST No. 16-1 CIP0911

## INPUT DATA

ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

N2= 92.000 92.000 91.000 91.000  
 TOP 41.000 42.000 46.000 45.000  
 STACK VEL. HO.= 1.20 0.50 0.80 0.80 0.50 0.75 0.80 0.70 0.90  
 STACK STATIC HO.= -1.70 -0.70 -1.40 -1.70 -1.70 -1.50 -1.40 -2.00 -1.50  
 FAN VEL. HO.= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 FAN STATIC HEAD= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 PRESS. AT INERTIAL FILTER-ST8D 11.500 9.500 11.000 10.000  
 PRESS. AT INERTIAL FILTER-PORT= 8.500 11.000 10.000 11.000  
 COOLING AIR SPLY PRESS.-ST8D. = 9.500 PORT = 9.500  
 PEERLESS PRESS-ST8D= 8.000 PORT= 8.500  
 PRESS AFT OF PEERLESS-ST8D= 6.000 PORT= 6.000  
 PRESS AFT OF BARRIER-ST8D= 4.800 PORT= 5.000  
 ENGINE PLENUM PRESS-ST8D= 1.40 1.40 1.60 2.00  
 ENGINE PLENUM PRESS-PORT= 2.00 2.00 1.80 1.80  
 FILTER NO.1 SCAV. PRESS.-VEL.HO.= 6.500 STATIC HO.= 0.0  
 OIL COOLER PRESS.-INLET = 4.800 OUTLET = 0.0  
 HOT SECT. PRESS.-INLET = 0.0 OUTBO.= 0.0  
 DUTSIDE AIR TEMP.= 72.000  
 STACK TEMP.= 87.000 93.000 75.000 82.000  
 FAN DISCHARGE TEMP.= 86.000  
 ENGINE PLENUM AIR TEMP.= 90.40 88.80  
 AIR TEMP.VIC.NO.2.GEAR BOX = 80.300  
 COOLING AIR TEMP.-ST8D.= 90.800 PORT= 0.0  
 LUBE OIL INPUT TEMP.-PWR1SECT.NO.3 = 0.0 DEG.C NO.4 = 0.0 DEG.C  
 LUBE OIL INPUT TEMP.,COMB.GEAR,STB.= 0.0 DEG.C

## ENGINE PERFORMANCE

1 TEMP= 90.40 ADJ. HP= 0.1337E 04TEMP= 88.80 AOJ. HP= 0.1339E 04  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.1377E 04  
 ENGINE AIRBOTH SIDES)-CFM= 0.1968E 05 TAVG1364)= 89.600

## STACK PERFORMANCE

AVG STACK TEMP= 84.25 TEMP RISE IN STACK 12.25  
 STACK PRESSURES VEL= 0.879 STATIC=-1.558 TOTAL HEAD=-0.679  
 FLOW IN STACK-CFM= 0.2528E 05

## FAN PERFORMANCE

PRESS. RECOVERY WITH OIFFUSER1561 OF VEL HO.1 = 0.0  
 FAN DISCHARGE PRESS. STATIC= 0.0 VEL. HEAD= 0.0 TOTAL HEAD= 0.0  
 FAN PRESS INCREASE= 0.679 FAN FLOW CFM= 0.0 FAN HORSEPOWER= 0.0  
 STATIC PRESS COR.= 0.0 TOTAL PRESS. COR.= 0.0  
 AVG. OF STACK AND FAN FLOW-CFM= 0.1259E 05

## APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

0A2101 PROGRAM INTERRUPT OLD PSM IS FF55000F6201FECA  
 APU AIR FLOW, CFM = 0.2160E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.2218E 04 VEL.-FT/SEC = 0.1729E 03

## SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, STB= 10.50 PORT= 10.12 AVG= 10.31  
 INERTIAL FILTER PRESS. DROP, STB= 2.50 PORT= 1.62 AVG= 2.06  
 PEERLESS PRESS. DROP, STB= 2.00 PORT= 2.50 AVG = 2.25  
 BARRIER FILTER PRESS.DROP = 1.10

70

PRESS DROP TO ENG. = STB = 3.20 PORT = 3.10 AVG = 3.15  
AVERAGE PLENUM PRESS. STBD = 1.600PORT = 1.900AVG = 1.750  
SCAV. PRESS DROP = 8.250  
COOLER DUCT DROP = 9.500  
DROP TO HOT SECT. = 41800  
PRESS. DROP ACROSS OIL COOLER = 4.800

TEST No. 16-2 02B0911

INPUT DATA  
 (ALL PRESSURES INCHES OF WATER-ALL TEMP.OEG.F UNLESS OTHERWISE STATED)

N2= 95.000 95.000 95.000 95.000  
 TOP 19.000 21.000 21.000 22.000  
 STACK VEL. HO.= 0.70 0.60 0.70 1.00 0.10 0.0 0.60 0.50  
 STACK STATIC HO.= -1.00 -0.50 -0.70 -1.20 -1.10 -1.20 -1.20 -0.90  
 FAN VEL. HO.= 0.0 0.0 0.0 0.0  
 FAN STATIC HEAD= 0.0 0.0 0.0 0.0  
 PRESS. AT INERTIAL FILTER-STB= 13.500 12.000 14.000 13.000  
 PRESS. AT INERTIAL FILTER-PORT= 11.500 13.000 12.500 14.000  
 COOLING AIR SPLY PRESS.-STB= 10.000 PORT= 10.000  
 PEERLESS PRESS-STB= 12.000 PORT= 12.000  
 PRESS AFT OF PEERLESS-STB= 9.500 PORT= 9.500  
 PRESS AFT OF BARRIER-STB= 8.000 PORT= 8.000  
 ENGINE PLENUM PRESS-STB= 7.00 7.00 7.00 7.20  
 ENGINE PLENUM PRESS-PORT= 7.00 6.80 6.50 6.50  
 FILTER NO.1 SCAV. PRESS.+VEL.HO.= 10.700 STATIC HO.= 0.0  
 OIL COOLER PRESS.-INLET = 5.000 OUTLET = 0.0  
 HOT SECT. PRESS.-INBRO.= 0.0 OUTBRO.= 0.0  
 OUTSIDE AIR TEMP.= 75.100  
 STACK TEMP.= 72.600 78.000 74.800 73.400  
 FAN DISCHARGE TEMP.= 84.000  
 ENGINE PLENUM AIR TEMP.= 85.90 88.10  
 AIR TEMP.VIC.NO.2 GEAR BOX = 109.000  
 COOLING AIR TEMP.-STB.= 97.200 PORT= 0.0  
 LUBE OIL INPUT TEMP.-PWJ SECT.NO.3 = 0.0 OEG.C NO.4 = 0.0 OEG.C  
 LUBE OIL INPUT TEMP.-COMB.GEAR,STB.= 0.0 OEG.C

ENGINE PERFORMANCE  
 1 TEMP= 85.90 ADJ. HP= 0.6650E 03TEMP= 88.10 A0J. HP= 0.6637E 03  
 2 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.6821E 03  
 3 ENGINE AIR(BOTH SIDES)-CFM= 0.1692E 05 TAVG(13&4)= 87.000

STACK PERFORMANCE  
 AVG STACK TEMP= 74.70  
 STACK PRESSURES VEL= 0.575 STATIC=-0.992 TOTAL HEAD=-0.417  
 FLOW IN STACK-CFH= 0.1913E 05

FAN PERFORMANCE  
 PRESS. RECOVERY WITH DIFFUSER I561 OF VEL HO.1 = 0.0  
 FAN DISCHARGE PRESS. STATIC= 0.0 VEL. HEAD= 0.0 TOTAL HEAD= 0.0  
 FAN PRESS INCREASE= 0.417 FAN FLOW CFH= 0.0 FAN HORSEPOWER= 0.0  
 STATIC PRESS COR.= 0.0 TOTAL PRESS. COR.= 0.0  
 AVG. OF STACK AND FAN FLOW-CFH= 0.9565E 04

## APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

0A2101 PROGRAM INTERRUPT OLO PSM IS FF55000F6201FECA  
 APU AIR FLOW, CFH = 0.2152E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFH = 0.2087E 04 VEL.-FT/SEC = 0.2215E 03

## SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, STB= 13.12 PORT= 12.75 AVG= 12.94  
 INERTIAL FILTER PRESS. DROP, STB= 1.12 PORT= 0.75 AVG= 0.94  
 PEERLESS PRESS. DROP, STB= 2.50 PORT= 2.50 AVG = 2.50  
 BARRIER FILTER PRESS.DROP = 1.50

PRESS DROP TO ENG.: STB= 0.95      PORT= 1.30      AVG= 1.13  
AVERAGE PLENUM PRESS. STB= 7.050PORT= 6.700AVG= 6.875  
SCAV. PRESS DROP= 12.000  
COOLER DUCT DROP= 10.000  
DROP TO HOT SECT.= 51.000  
PRESS. DROP ACROSS OIL COOLER = 5.000

TEST No. 16-2 02C0911

INPUT DATA

(ALL PRESSURES INCHES OF WATER-ALL TEMP.-DEG.F UNLESS OTHERWISE STATED)

N2= 93.000 92.000 93.000 93.000  
 TOP 30.000 32.000 30.000 31.000  
 STACK VEL. HD.= 1.00 0.0 0.30 0.70 0.80 0.80 0.70 0.50 0.40  
 STACK STATIC HD.= -1.70 -0.50 -1.30 -1.20 -1.50 -1.40 -1.40 -1.60 -1.40  
 FAN VEL. HD.= 0.0 0.0 0.0 0.0 0.0  
 FAN STATIC HEAD= 0.0 0.0 0.0 0.0  
 PRESS. AT INERTIAL FILTER-STB= 12.500 11.000 12.000 10.000  
 PRESS. AT INERTIAL FILTER-PORT= 10.000 12.000 10.500 11.000  
 COOLING AIR SPLY PRESS.-STB= 9.500 PORT= 9.000  
 PEERLESS PRESS-STB= 9.000 PORT= 8.500  
 PRESS AFT OF PEERLESS-STB= 7.000 PORT= 7.000  
 PRESS AFT OF BARRIER-STB= 5.200 PORT= 5.000  
 ENGINE PLENUM PRESS-STB= 2.50 3.00 3.00 3.20  
 ENGINE PLENUM PRESS-PORT= 4.00 3.00 3.00 3.00  
 FILTER NO.1 SCAV. PRESS.-VEL.HD.= 9.000 STATIC.HD.= 0.0  
 OIL COOLER PRESS.-INLET = 4.200 OUTLET = 0.0  
 HOT SECT. PRESS.-INBR.= 0.0 OUTB.= 0.0  
 OUTSIDE AIR TEMP.= 75.100  
 STACK TEMP.= 110.000 95.000 80.200 103.000  
 FAN DISCHARGE TEMP.= 118.000  
 ENGINE PLENUM AIR TEMP.= 114.10 120.00  
 AIR TEMP-VIC NO.2 GEAR BOX = 94.000  
 COOLING AIR TEMP.-STB.= 105.000 PORT= 0.0  
 LUBE OIL INPUT TEMP.-PARISECT.NO.3 = 0.0 DEG.C NO.4 = 0.0 DEG.C  
 LUBE OIL INPUT TEMP.-COMB.GEAR.STB.= 0.0 DEG.C

1. TEMP= 114.10 ADJ. HP= 0.9381E 03TEMP= 120.00 ADJ. HP= 0.9333E 03  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.9867E 03  
 ENGINE AIR(BOTH SIDES)-CFM= 0.1854E 05 TAVG(3&4)= 117.050

AVG STACK TEMP= 97.05  
 STACK PRESSURES VEL= 0.683 STATIC=-1.425 TOTAL HEAD=-0.742  
 FLOW IN STACK-CFM= 0.2140E 05

FAN PERFORMANCE  
 PRESS. RECOVERY WITH OIFFUSER(561 OF VEL NO.1) = 0.0  
 FAN DISCHARGE PRESS. STATIC= 0.0 VEL. HEAD= 0.0 TOTAL HEAD= 0.0  
 FAN PRESS INCREASE= 0.742 FAN FLOW CFM= 0.0 FAN HORSEPOWER= 0.0  
 STATIC PRESS COR.= 0.0 TOTAL PRESS. COR.= 0.0  
 AVG. OF STACK AND FAN FLOW-CFM= 0.1070E 05

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

0A2101 PROGRAM INTERRUPT OLO PSW IS FF55000F6201FECA  
 APU AIR FLOW, CFM = 0.2287E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.1973E 04 VEL.-FT/SEC = 0.2094E 03

SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, STB= 11.37 PORT= 10.87 AVG= 11.12  
 INERTIAL FILTER PRESS. DROP, STB= 2.37 PORT= 2.37 AVG= 2.37  
 PEERLESS PRESS. DROP, STB= 2.00 PORT= 1.50 AVG= 1.75  
 BARRIER FILTER PRESS.DROP = 1.90

74

PRESS DROP TO ENG. STBA 2.40 PORT= 1.75 AVG= 2.07  
AVERAGE PLENUM PRESS. STBD= 2.800PORT= 3.250AVG= 3.025  
SCAV. PRESS DROP= 8.750  
COOLER DUCT DROP= 9.250  
DROP TO HOT SECT.= 4.200  
PRESS. DROP ACROSS OIL COOLER = 4.200

TEST No. 16-2 C2D0911

INPUT DATA

ALL PRESSURES INCHES OF WATER-ALL TEMP.OEG.F UNLESS OTHERWISE STATED)

N2= 91.000 91.000 91.000 91.000  
 TOP 39.000 40.000 44.000 45.000  
 STACK VEL. HD.= 1.10 0.0 0.40 0.30 0.70 0.60 0.70  
 STACK STATIC HD.= -1.70 -0.70 -1.30 -1.60 -1.50 -1.50 -2.00  
 FAN VEL. HD.= 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 FAN STATIC HEAD= 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 PRESS. AT INERTIAL FILTER-ST80 12.000 9.500 11.500 10.500  
 PRESS. AT INERTIAL FILTER-PORT= 9.500 11.000 10.000 11.500  
 COOLING AIR SPLY PRESS.-ST80 = 9.500 PORT = 9.000  
 PEERLESS PRESS-ST80= 9.500 PORT= 9.500  
 PRESS AFT OF PEERLESS-ST80= 6.800 PORT= 6.600  
 PRESS AFT OF BARRIER-ST80= 4.000 PORT= 4.000  
 ENGINE PLENUM PRESS-ST80= 2.20 2.20 2.00 2.60  
 ENGINE PLENUM PRESS-PORT= 2.50 2.50 2.20 2.20  
 FILTER NO.1 SCAV. PRESS.-VEL.HD.= 9.000 STATIC HD.= 0.0  
 OIL COOLER PRESS.-INLET = 4.700 OUTLET = 0.0  
 HOT SECT. PRESS.-INBRO.= 0.0 OUTBD.= 0.0  
 OUTSIDE AIR TEMP.= 75.100  
 STACK TEMP.= 118.000 107.000 84.000 88.000  
 FAN DISCHARGE TEMP.= 96.000  
 ENGINE PLENUM AIR TEMP.= 95.00 90.40  
 AIR TEMP.VIC.NO.2 GEAR BOX = 80.000  
 COOLING AIR TEMP.-ST80.= 94.200 PORT= 0.0  
 LUBE OIL INPUT TEMP.-PWR1SECT.NO.3 = 0.0 DEG.C NO.4 = 0.0 DEG.C  
 LUBE OIL INPUT TEMP.-COMB.GEAR.ST8.= 0.0 DEG.C

ENGINE PERFORMANCE

TEMP= 95.00 ADJ. HP= 0.1279E OATMP= 90.40 A0J. HP= 0.1284E 04  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.1322E 04  
 ENGINE AIR(BOTH SIDES)-CFM= 0.1951E 05 TAVG1364)= 92.700

STACK PERFORMANCE

AVG STACK TEMP= 99.25  
 STACK PRESSURES VEL= 0.687 TEMP RISE IN STACK 24.15  
 FLOW IN STACK-CFM= 0.2138E 05  
 STATIC=-1.508 TOTAL HEAD=-0.821

FAN PERFORMANCE

PRESS. RECOVERY WITH DIFFUSER1561 OF VEL HD.1 = 0.0  
 FAN DISCHARGE PRESS. STATIC= 0.0 VEL. HEAD= 0.0 TOTAL HEAD= 0.0  
 FAN PRESS INCREASE= 0.821 FAN FLOW CFM= 0.0 FAN HORSEPOWER= 0.0  
 STATIC PRESS COR.= 0.0 TOTAL PRESS. COR.= 0.0  
 AVG. OF STACK AND FAN FLOW-CFM= 0.1049E 05

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

0A2101 PROGRAM INTERRUPT OLD PSM 15 FF55000F6201FECA  
 APU AIR FLOW, CFM = 0.2200E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.1935E 04 VEL.-FT/SEC = 0.2054E 03

SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, ST8= 10.87 PORT= 10.50 AVG= 10.69  
 INERTIAL FILTER PRESS. DROP, ST8= 1.37 PORT= 1.00 AVG= 1.19  
 PEERLESS PRESS. DROP, ST8= 2.70 PORT= 2.90 AVG = 2.80  
 BARRIER FILTER PRESS.DROP = 2.70



26

PRESS DROP TO ENG. STB- 1.75 PORT- 1.65 AVG- 1.70  
AVERAGE PLENUM PRESS. STB- 2.250PORT- 2.350AVG- 2.300  
SCAV. PRESS DROP- 9.500  
COOLER OUCT DROP- 9.250  
DROP TO HOT SECT.- 4.700  
PRESS. DROP ACROSS OIL COOLER - 4.700

TEST No. 16-3 @380911

INPUT DATA  
ALL PRESSURES INCHES OF WATER-ALL TEMP. DEG. F UNLESS OTHERWISE STATED)

N2= 95.000 95.000 95.000 95.000  
TOP 20.000 21.000 21.000 22.000  
STACK VEL. MD.= 0.90 0.50 0.60 0.30 0.0 0.45 0.40 0.30 0.60  
STACK STATIC MD.= -0.80 -0.20 -0.60 -0.80 -0.80 -0.60 -1.00 -0.60  
FAN VEL. MD.= 0.0 0.0 0.0 0.0  
FAN STATIC HEAD= 0.0 0.0 0.0 0.0  
PRESS. AT INERTIAL FILTER-STB= 14.500 13.000 14.000 13.000  
PRESS. AT INERTIAL FILTER-PORT= 13.000 14.000 13.000 14.000  
COOLING AIR SPLY PRESS.-STB= 10.000 PORT=10.000  
PEERLESS PRESS-STB=11.500 PORT=11.500  
PRESS AFT OF PEERLESS-STB= 8.500 PORT= 8.500  
PRESS AFT OF BARRIER-STB= 7.500 PORT= 7.500  
ENGINE PLENUM PRESS-STB= 5.80 5.80 6.00 6.00  
ENGINE PLENUM PRESS-PORT= 6.00 5.80 5.50 5.50  
FILTER NO.1 SCAV. PRESS.-VEL MD.= 12.000 STATIC MD.= 0.0  
OIL COOLER PRESS.-INLET = 4.800 OUTLET = 0.0  
HOT SECT. PRESS.-INLET = 0.0 OUTLET = 0.0  
OUTSIDE AIR TEMP.= 75.100  
STACK TEMP.= 74.000 81.000 85.000 76.000  
FAN DISCHARGE TEMP.= 89.000  
ENGINE PLENUM AIR TEMP.= 88.30 91.60  
AIR TEMP VIC NO.2 GEAR BOX = 86.200  
COOLING AIR TEMP.-STB.= 103.000 PORT= 0.0  
LUBE OIL INPUT TEMP.-PWR SECT NO.3 = 0.0 DEG.C NO.4 = 0.0 DEG.C  
LUBE OIL INPUT TEMP.-COMB. GEAR. STB.= 0.0 DEG.C

ENGINE PERFORMANCE  
1. TEMP= 88.30 AOJ. MP= 0.6716E 03TEMP= 91.60 AOJ. MP= 0.6695E 03  
2. AVERAGE HORSEPOWER--BOTH ENGINES-- 0.6903E 03  
ENGINE AIR (BOTH SIDES)-CFM= 0.1699E 05 TAVG(364)= 89.950

STACK PERFORMANCE  
AVG STACK TEMP= 79.00 TEMP RISE IN STACK 3.90  
STACK PRESSURES VEL= 0.562 STATIC=0.700 TOTAL HEAD=0.138  
FLOW IN STACK-CFM= 0.1903E 05

FAN PERFORMANCE  
PRESS. RECOVERY WITH OIFRUSER1561 OF VEL NO.1 = 0.0  
FAN DISCHARGE PRESS. STATIC= 0.0 VEL. HEAD= 0.0 TOTAL HEAD= 0.0  
FAN PRESS INCREASE= 0.139 FAN FLOW CFM= 0.0 FAN HORSEPOWER= 0.0  
STATIC PRESS COR.= 0.0 TOTAL PRESS. COR.= 0.0  
AVG. OF STACK AND FAN FLOW-CFM= 0.9513E 04

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW  
0A2101 PROGRAM INTERRUPT 02.0 PSM 15 FFS5000F6201FECA  
APU AIR FLOW, CFM = 0.2172E 04  
INERTIAL FILTER SCAVENGING FLOW-CFM = 0.1446E 04 VEL.-FT/SEC = 0.2356E 03

SYSTEM PRESSURE DROPS  
PRESS. AT INERTIAL FILTER, STB= 13.62 PORT= 13.50 AVG= 13.56  
INERTIAL FILTER PRESS. DROP, STB= 2.12 PORT= 2.00 AVG= 2.06  
PEERLESS PRESS. DROP, STB= 3.00 PORT= 3.00 AVG= 3.00  
BARRIER FILTER PRESS.DROP = 1.00

PRESS DROP TO ENG., STB=	1.60	PORT=	1.80	AVG=	1.70
AVERAGE PLENUM PRESS. STB=		5.900PORT=		5.700AVG=	
SCAV. PRESS DROP=	11.500				5.800
COOLER DUCT DROP=	10.000				
DROP TO HOT SECT.=	4.800				
PRESS. DROP ACROSS OIL COOLER =	4.800				

TEST NO 16-3 0300911

INPUT DATA  
ALL PRESSURES INCHES OF WATER-ALL TEMP.OEG.F UNLESS OTHERWISE STATED)

N2= 92.000 92.000 93.000 92.000  
TOP 30.000 32.000 30.000 30.000  
STACK VEL. MO.= 1.00 0.30 0.50 0.20 0.0 0.70 0.60 0.70  
STACK STATIC MO.= -1.60 -0.60 -1.20 -1.20 -1.20 -1.60 -1.40 -1.00  
FAN VEL. MO.= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
FAN STATIC HEAD= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
PRESS. AT INERTIAL FILTER-ST80 12.500 11.500 13.500 12.000  
PRESS. AT INERTIAL FILTER-PORT= 10.500 11.000 12.000 13.000  
COOLING AIR SPLY PRESS.-ST80 10.000 10.000 10.000 9.500  
PEERLESS PRESS-ST80-10.500 10.000 10.000 9.500  
PRESS APT OF PEERLESS-ST80= 7.800 7.800 7.800 7.800  
PRESS APT OF BARRIER-ST80= 6.000 6.000 6.000 6.000  
ENGINE PLENUM PRESS-ST80= 4.00 4.00 4.00 4.00  
ENGINE PLENUM PRESS-PORT= 4.80 4.50 4.00 4.00  
FILTER NO.1 SCAV. PRESS.-VEL.MO.= 10.500 10.500 10.500 10.500  
OIL COOLER PRESS.-INLET = 5.000 5.000 5.000 5.000  
HOT SECT. PRESS.-INLET= 0.0 0.0 0.0 0.0  
OUTSIDE AIR TEMP.= 75.100 75.100 75.100 75.100  
STACK TEMP.= 75.300 74.000 73.000 75.500  
FAN DISCHARGE TEMP.= 85.000 85.000 85.000 85.000  
ENGINE PLENUM AIR TEMP.= 92.20 93.00 93.00 93.00  
AIR TEMP.VIC.NO.2 GEAR BOX = 92.000 92.000 92.000 92.000  
COOLING AIR TEMP.-ST80.= 94.000 94.000 94.000 94.000  
LUBE OIL INPUT TEMP.-PARISECT.NO.3 = 0.0 0.0 0.0 0.0  
LUBE OIL INPUT TEMP.-COMB.GEAR, STB.= 0.0 0.0 0.0 0.0

TEMP= 92.20 ADJ. MP= 0.9437E 03TEMP= 93.00 ADJ. MP= 0.9431E 03  
AVERAGE HORSEPOWER--BOTH ENGINES-- 0.9735E 03  
ENGINE AIR(BOTH SIDES)-CFM= 0.1017E 05 TAVG13CA1= 92.600

STACK PERFORMANCE  
AVG STACK TEMP= 74.45  
TEMP RISE IN STACK -0.65  
STACK PRESSURES VEL= 0.642 STATIC=-1.250 TOTAL HEAD=-0.617  
FLOW IN STACK-CFM= 0.2015E 05

FAN PERFORMANCE  
PRESS. RECOVERY WITH DIFFUSER1961 OF VEL MO.1 = 0.0  
FAN DISCHARGE PRESS. STATIC= 0.0 VEL. HEAD= 0.0 TOTAL HEAD= 0.0  
FAN PRESS INCREASE= 0.617 FAN FLOW CFM= 0.0 FAN HORSEPOWER= 0.0  
STATIC PRESS COR.= 0.0 TOTAL PRESS. COR.= 0.0  
AVG. OF STACK AND FAN FLOW-CFM= 0.1007E 05

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW  
0A2101 PROGRAM INTERRUPT 0LO PSM 15 FF55000F6201FECA  
APU AIR FLOW. CFM = 0.2156E 04  
INERTIAL FILTER SCAVENGING FLOW-CFM = 0.1347E 04 VEL.-FT/SEC = 0.2196E 03

SYSTEM PRESSURE DROPS  
PRESS. AT INERTIAL FILTER, STB= 12.37 PORT= 11.62 AVG= 12.00  
INERTIAL FILTER PRESS. DROP, STB= 1.88 PORT= 1.62 AVG= 1.75  
PEERLESS PRESS. DROP, STB= 2.70 PORT= 2.20 AVG= 2.45  
BARRIER FILTER PRESS.DROP = 1.80

1.08 1.74 4.262  
5.325AVG=

5.000

TEST No. 16-3 C3D0911

## INPUT DATA

TAIL PRESSURES INCHES OF WATER-ALL TEMP.OEG.F UNLESS OTHERWISE STATED)

N2= 92.000 92.000 91.000 91.000  
 TOP 40.000 42.000 46.000 46.000  
 STACK VEL. HO.= 1.10 0.20 0.50 0.40 0.0 0.70 0.70 0.60 0.70  
 STACK STATIC HO.= -1.40 -0.40 -1.20 -1.40 -1.50 -1.30 -1.30 -1.70 -1.10  
 FAN VEL. HO.= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 FAN STATIC HEAD= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  
 PRESS. AT INERTIAL FILTER-ST80 13.000 11.500 13.000 11.500 11.500  
 PRESS. AT INERTIAL FILTER-PORT= 10.000 12.500 11.500 12.500  
 COOLING AIR SPLY PRESS.-ST80=10.000 PORT= 9.500  
 PEERLESS PRESS-ST80=10.000 PORT= 9.800  
 PRESS AFT OF PEERLESS-ST80= 7.000 PORT= 7.000  
 PRESS AFT OF BARRIER-ST80= 4.400 PORT= 4.400  
 ENGINE PLENUM PRESS-ST80= 2.40 2.40 2.40 3.00  
 ENGINE PLENUM PRESS-PORT= 3.20 3.20 2.80 2.80  
 FILTER NO.1 SCAV. PRESS.+VEL.HO.= 10.200 STATIC HO.= 0.0  
 OIL COOLER PRESS.-INLET = 4.700 OUTLET = 0.0  
 HOT SECT. PRESS.-IN80.= 0.0 OUT80.= 0.0  
 OUTSIDE AIR TEMP.= 75.100  
 STACK TEMP.= 74.300 75.400 75.100  
 FAN DISCHARGE TEMP.= 83.100  
 ENGINE PLENUM AIR TEMP.= 85.90 85.80  
 AIR TEMP.VIC.NO.2.GEAR BOX = 83.000  
 COOLING AIR TEMP.-ST80.= 94.300 PORT= 0.0  
 LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 = 0.0 OEG.C NO.4 = 0.0 OEG.C  
 LUBE OIL INPUT TEMP.-COMB.GEAR.ST8.= 0.0 OEG.C

A-1-64

## ENGINE PERFORMANCE

TEMP= 85.90 AOJ. HP= 0.1342E 04TEMP= 85.80 AOJ. HP= 0.1342E 04  
 AVERAGE HORSEPOWER--BOTH ENGINES-- 0.1377E 04  
 ENGINE AIR(80TH SLOES)-CFM= 0.1963E 05 TAVG(1364)= 85.850

## STACK PERFORMANCE

AVG STACK TEMP= 75.20 TEMP RISE IN STACK 0.10  
 STACK PRESSURES VEL= 0.683 STATIC=-1.292 TOTAL HEAD=-0.608  
 FLOW IN STACK-CFM= 0.2079E 05

## FAN PERFORMANCE

PRESS. RECOVERY WITH DIFFUSER(56( OF VEL HO.)) = 0.0  
 FAN DISCHARGE PRESS. STATIC= 0.0 VEL. HEAD= 0.0 TOTAL HEAD= 0.0  
 FAN PRESS INCREASE= 0.608 FAN FLOW CFM= 0.0 FAN HORSEPOWER= 0.0  
 STATIC PRESS COR.= 0.0 TOTAL PRESS. COR.= 0.0  
 AVG. OF STACK AND FAN FLOW-CFM= 0.1040E 05

## APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

OA2101 PROGRAM INTERRUPT OLO PSM IS FF55000F6201FECA  
 APU AIR FLOW, CFM = 0.2148E 04  
 INERTIAL FILTER SCAVENGING FLOW-CFM = 0.1326E 04 VEL.-FT/SEC = 0.2161E 03

## SYSTEM PRESSURE OROPS

PRESS. AT INERTIAL FILTER, ST8= 12.25 PORT= 11.62 AVG= 11.94  
 INERTIAL FILTER PRESS. DROP, ST8= 2.25 PORT= 1.83 AVG= 2.04  
 PEERLESS PRESS. DROP, ST8= 3.00 PORT= 2.80 AVG= 2.90  
 BARRIER FILTER PRESS.DROP = 2.60

82

PRESS DROP TO ENG. STB 1.85 PORT= 1.40 AVG= 1.63  
AVERAGE PLENUM PRESS. STB= 2.550PORT= 3.000AVG= 2.775  
SCAV. PRESS. DROP= 9.900  
COOLER DUCT DROP= 9.750  
DROP TO HOT SECT.= 4.700  
PRESS. DROP ACROSS OIL COOLER = 4.700  
STOP 999

A-65

END OF JOB.

56.0 SEC. USED .016 HRS. CHARGED 2.836 HRS. REMAINING